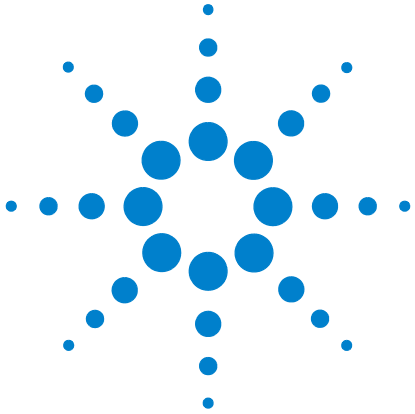

Agilent N9360A
Multi UE Tester

CDMA2000 User Manual

Agilent Technologies

Notices

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Preface

Thank-you for purchasing the Agilent N9360A Code Division Multiple Access (cdma2000) Option. This option is the cdma2000 software for the Agilent N9360A Multi UE Tester.

- Before using the tester, the user is advised to read this manual carefully to ensure correct usage and also to fully utilize the tester capability.
- This manual is a reference document and the user is advised to keep it carefully for future reference.
- The manual includes the characteristics of cdma2000, the tester operation, test procedures and screen references.
- Refer to the *Agilent N9360A Installation Guide* for information regarding installation and details of the tester. Refer also to the *Agilent N9360A GSM User manual* for information about the test functions of the Global System for Mobile Communication (GSM) and the *Agilent N9360A W-CDMA User Manual* for information about the test functions of the Wideband Code Division Multiple Access (W-CDMA).

Notation

The following notations are used in this manual:

- **Softkey** : indicates a softkey;
- [Screen Name] : indicates a screen name;
- Tester/tester : indicates the Agilent N9360A Multi UE Tester.

Please note that the screens of the user interface (UI) and values on the screen used in this manual can be different from the actual screens.

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Agilent Technologies	**DECLARATION OF CONFORMITY** According to EN ISO/IEC 17050-1:2004	CE

Manufacturer's Name: Agilent Technologies Microwave Products (M) Sdn. Bhd
Manufacturer's Address: Bayan Lepas Free Industrial Zone,
11900, Bayan Lepas, Penang, Malaysia

Declares under sole responsibility that the product as originally delivered

Product Name: Multi UE Tester
Models Number: N9360A-134, N9360A-135 (GS8210)
Product Options: This declaration covers all options of the above product(s)

complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:

Low Voltage Directive (2006/95/EC)
EMC Directive (2004/108/EC)

and conforms with the following product standards:

EMC

Standard	Limit
IEC 61326:2002 / EN 61326:1997+A1:1998+A2:2001+A3:2003	
CISPR 11:1990 / EN55011:1990	Class A Group 1
IEC 61000-4-2:1995 / EN 61000-4-2:1995	4 kV CD, 8 kV AD
IEC 61000-4-3:1995 / EN 61000-4-3:1996	3 V/m, 80-1000 MHz
IEC 61000-4-4:1995 / EN 61000-4-4:1995	0.5 kV signal lines, 1 kV power lines
IEC 61000-4-5:1995 / EN 61000-4-5:1995	0.5 kV line-line, 1 kV line-ground
IEC 61000-4-6:1996 / EN 61000-4-6:1996	3 V, 0.15-80 MHz
IEC 61000-4-11:1994 / EN 61000-4-11:1994	1 cycle / 100%

Canada: ICES-001:2004
Australia/New Zealand: AS/NZS CISPR11:2004

The product was tested in a typical configuration with Agilent Technologies test systems.

Safety

IEC 61010-1:2001 / EN 61010-1:2001
Canada: CAN/CSA-C22.2 No. 61010-1-04
USA: ANSI/UL 61010-1:2004

c SP us
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20-Jun-2008
Date

Tay Eng Su
Quality Manager

For further information, please contact your local Agilent Technologies sales office, agent or distributor, or Agilent Technologies Deutschland GmbH, Herrenberger Straße 130, 71034 Böblingen, Germany.

Template: A5971-5302-2, Rev. E N9360A_134_ 135 DoC Revision 1.0

Product Regulations

EMC

	Performance Criteria
IEC 61326-1:2002 / EN 61326-1:1997+A1:1998+A2:2001+A3:2003	
CISPR 11:1990 / EN 55011:1990 – Group 1 Class A	
IEC 61000-4-2:1995 / EN 61000-4-2:1995 (ESD 4kV CD, 8kV AD)	B
IEC 61000-4-3:1995 / EN 61000-4-3:1996 (3V/m, 80% AM)	A
IEC 61000-4-4:1995 / EN 61000-4-4:1995 (EFT 0.5kV line-line, 1kV line-earth)	A
IEC 61000-4-5:1995 / EN 61000-4-5:1995 (Surge 0.5kV line-line, 1kV line-earth)	A
IEC 61000-4-6:1996 / EN 61000-4-6:1996 (3V, 0.15~80 MHz, 80% AM, power line)	A
IEC 61000-4-11:1994 / EN 61000-4-11:1994 (Dips 1 cycle, 100%)	A
Canada: ICES-001:2004	
Australia/New Zealand: AS/NZS CISPR11:2004	

Safety IEC 61010-1:2001 / EN 61010-1:2001
Canada: CAN/CSA-C22.2 No. 61010-1-04
USA: ANSI/UL 61010-1:2004

Additional Information:

The product herewith complies with the essential requirements of the Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC and carries the CE Marking accordingly (European Union).

[1]Performance Criteria:

A Pass - Normal operation, no effect.
B Pass - Temporary degradation, self recoverable.
C Pass - Temporary degradation, operator intervention required.
D Fail - Not recoverable, component damage.
N/A – Not applicable

Notes:

Regulatory Information for Canada

ICES/NMB-001:2004
This ISM device complies with Canadian ICES-001.
Cet appareil ISM est confomre à la norme NMB-001 du Canada.

Regulatory Information for Australia/New Zealand

This ISM device complies with Australian/New Zealand AS/NZS CISPR11:2004

N10149

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Legal Information

Warranty

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Any adjustment, maintenance, or repair of this product must be performed by qualified personnel. Contact your customer engineer through your local Agilent Technologies Service Center.

Agilent On The Web

You can find information about technical and professional services, product support, and equipment repair and service on the Web: **http://www.agilent.com/**

Double-click the link to **Test & Measurement**. Select your country from the drop-down menus. The Web page that appears next has contact information specific for your country

Agilent By Phone

If you do not have access to the Internet, call one of the numbers in **Table 1-1**.

Table 1-1 Agilent Call Centers and Regional Headquarters

United States and Canada:	Test and Measurement Call Center (800) 452 4844 (toll-free in US)
Europe:	(41 22) 780 8111
Japan:	Measurement Assistance Center (81) 0426 56 7832
Latin America:	305 269 7548
Asia-Pacific:	(85 22) 599 7777

Manufacturing Address

Agilent Technologies Microwave Products (Malaysia) Sdn. Bhd.

Bayan Lepas Free Industrial Zone,

11900 Penang,

Malaysia.

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2
Caution and Safety Requirements

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Safety Information

Safety Summary

The following general safety precautions must be observed during all phases of operation of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. Agilent Technologies, Inc. assumes no liability for the customer's failure to comply with these requirements.

Safety Notices

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like, that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Warning Label

A warning label is stuck on the front panel of the Tester.

Do not remove, damage or modify the warning label.

General

WARNING **The protection provided by the Agilent N9360A Tester may be impaired if the tester is used in a manner not specified by Agilent or the instructions on the display are not followed.**

WARNING **DO NOT INSTRUMENT COVERS. Operating personnel must not remove any instrument covers. Component replacement and internal adjustments must be made only by qualified service personnel. Products that appear damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by a qualified service personnel.**

When Operating The Tester

CAUTION Make sure that the input signal level does not exceed the maximum level allowed. Tester failure may result otherwise.

CAUTION Do not turn off the Line switch on the rear panel of the Tester while the LINE LED on the front panel of the Tester is lit in green. Otherwise, Tester failure may occur.

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3 Overview

Functions 3-2
Features 3-4
Configuration 3-5
Options 3-6
Accessories 3-6

This chapter outlines the feature of the CDMA2000 Option. For functions of the GSM Option, refer to the N9360A Multi UE Tester GSM User Manual, and for functions of the W-CDMA Option, refer to the N9360A Multi UE Tester W-CDMA User Manual.

The CDMA2000 Option for the N9360A Multi UE Tester supports the Protocol and RF performance tests to inspect mobile phones in the process of production, service, repair and maintenance.

The N9360A can carry out the radio performance tests including call processes. In addition, it provides TX Analyzer function which offer RF radio performance tests without call processes and Signal Generator function to adjust radio parts.

Functions

Table 3-1 shows the functions of this Tester in the CDMA2000 Option.

Table 3-1 Main Functions

Option	Function	
cdma2000	Band: 0, 1, 3, 4, 6	
	Protocol Test	
	MC-1x (Option C01)	Location Update
		MS Call
		Talk
		MS Release
		BS Call
		BS Release
		Softer Handoff
		Hard Handoff
	1xEV-DO (Option C02)	UATI Assignment (Session Open)
		BS Call
		Connection Close (Initiated by AN)
		Session Close (Initiated by AN)
		Softer Handoff
		Channel Change (Hard Handoff)
	TX Analyzer	
	Signal Generator	AM Modulation

Table 3-1 Main Functions

Option	Function	
cdma2000 (continued)	Radio Performance Test	
	MC-1x (Option C01)	TX Power Measurement
		Frequency Error Measurement
		Rho/Multi-code Rho Measurement
		Origin Offset Measurement
		Maximum TX Power Measurement
		Minimum TX Power Measurement
		Time Offset Measurement
		Sensitivity/FER Measurement, Sensitivity/TDSO
		FER Measurement [1]
		Code Domain Power Measurement
		TX Power [2]
		Pilot [2]
		Traffic (Fundamental) [2]
		Max Inactive Channel [2]
		Access Probe Power Measurement
		Inner Loop Power Control Measurement
		ILP (Down)
		ILP (Up)
	1xEV-DO (Option C02)	TX Power Measurement
		Frequency Error Measurement
		Waveform Quality (Multi-Code Rho) Measurement
		Packet Error Rate (PER) Measurement
		Maximum TX Power Measurement
		Minimum TX Power Measurement
		Time Offset Measurement
		Code Domain Power Measurement
		TX Power
		Pilot
		RRI
		DRC
		ACK
		DSC [3]
		Data
		Max Inactive Channel
		Access probe Power
		Inner Loop Power Control Measurement
		ILP (Down)
		ILP (Up)

Table 3-1 Main Functions

Option	Function
Remote Control	Ethernet Serial (Option E01) GP-IB (Option E02)

1. The measurement is valid only when the Radio Configuration is set to F3R3, F4R3 and F5R4 and the Service Option is set to 32.
2. The measurement is valid only when the Radio Configuration is set to F3R3, F4R3 and F5R4.
3. The measurement is valid only when the 3GPP2 Config is set to 3 or 4 (1xEV-DO Rev. A).

Features

Easy-to-operate Automatic Test

The N9360A Multi UE Tester offers automatic test procedure from protocol to the radio performance tests are executed automatically with easy operation. Each test item in Automatic Test can be set to either `On` or `Off`. Testing time can be shortened by eliminating unnecessary test items.

Reducing Operation Time

In Automatic Test, preset traffic channels are automatically handed over. Consequently, restarting for each traffic channel is not required and testing time can be shortened.

Various Test Functions

The N9360A Tester, which is equipped with the Automatic Test, Manual Test, and Signal Generator, can be used for a wide variety of measurement operations.

Extensive Interface Options

The N9360A Tester offers various interface options including Ethernet, USB, GP-IB (Option E02) and Serial (Option E01). The USB ports are offered to connect a printer, a USB-GPIB converter (Option E02), or a USB memory device for firmware update or parameter saving/recalling. Ethernet, GP-IB, and Serial are used for remote control.

External Control Function (Remote Control)

Remote control is available using Ethernet, USB-GPIB converter (Option E02) or Serial (Option E01). Each interface port uses the same commands. User can select the most appropriate option from these selections.

5-band Handover

Handover is executed through all channels of five bands while being connected. This function is available if the mobile phone supports the bands and channels to be hand overed.

Configuration

Table 3-2 shows the configuration of the Tester. Check the components before using the Tester.

Table 3-2 Configuration

Item name	Type	Quantity	Remarks
cdma2000 Option	C00, C01, C02	1	Installed on the Tester
User Manual		1	
Programming Manual		1	
Quick Reference		1	
Installation Guide		1	
Inspection Data		1	
Certificate of Calibration	—	1	

Options

Table 3-3 shows the options of the Tester. For the specification of the options, contact the Agilent Sales Department or an approved distributor.

Table 3-3 Options

Item Name	Type	Remarks
CDMA2000 Band15:AWS	C03	Band15: Advanced Wireless Services
Serial Port	E01	DSub 9-pin male connector
USB-GPIB Converter	E02	Use a USB interface IEEE 24 pin connector (Amphenol)
cdma2000 PoST [1]	E05	PoST software for cdma2000

1. Post (Point of Service Test) is software to control the Tester with PCs.

Accessories

Table 3-4 shows the accessories of the Tester. For the specification of the accessories, contact the Agilent Sales Department or an approved distributor.

Table 3-4 Accessories

Item Name	Type	Remarks
Antenna Coupler	N9360A-A02	Frequency Range: 824 to 1990MHz Coupling Factor: 15dB (at 824 to 960 MHz) 13dB (at 1710 to 1880 MHz) 11dB (at 1880 to 1990 MHz)
Shield Case	N9360A-S01	Built-in PCB antenna-type Frequency Range: 800 to 2000 MHz

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4 Operating Procedure

Test Flow 4-2
Preparation for Each Test 4-3
Test Procedure 4-7
Ending a Test 4-74

This chapter describes the preparations required and the operating procedures before starting the test of the CDMA Mobile Unit. For the testing method of the GSM Mobile Unit, refer to the N9360A Multisystem UE Tester GSM Option User's Guide and for the testing method of the W-CDMA Mobile Unit, refer to the N9360A Multi UE Tester W-CDMA Option User's Guide.

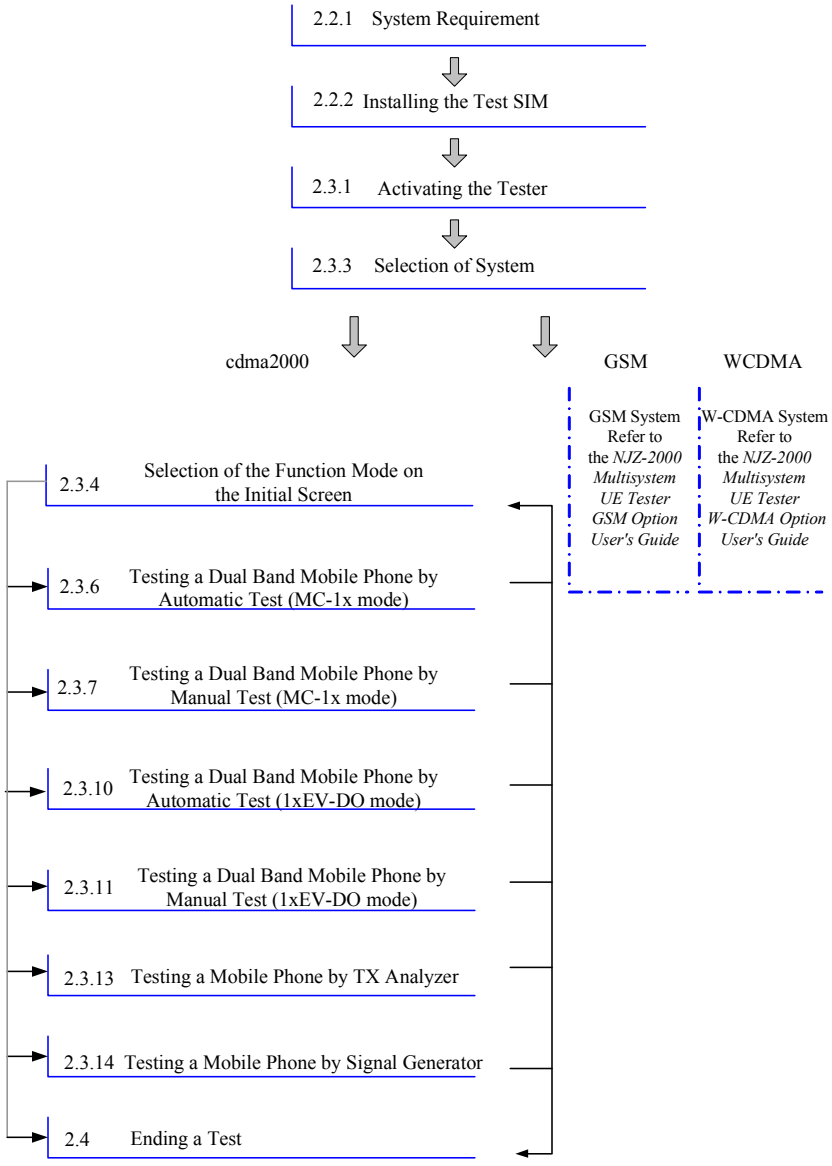
Test Flow

This section describes a test flow to inspect the Mobile Unit with the CDMA2000 Option (MC-1x mode: Option C01, 1xEV-DO mode: Option C02).

Figure 4-1 shows the test operation flow.

Subsequently, the mobile phone operation method is described according to the test flow.

Figure 4-1 Test Flow


2.2.1 System Requirement
2.2.2 Installing the Test SIM
2.3.1 Activating the Tester
2.3.3 Selection of System
cdma2000
GSM
WCDMA
GSM System Refer to the NJZ-2000 Multisystem UE Tester GSM Option User's Guide
W-CDMA System Refer to the NJZ-2000 Multisystem UE Tester W-CDMA Option User's Guide
2.3.4 Selection of the Function Mode on the Initial Screen
2.3.6 Testing a Dual Band Mobile Phone by Automatic Test (MC-1x mode)
2.3.7 Testing a Dual Band Mobile Phone by Manual Test (MC-1x mode)
2.3.10 Testing a Dual Band Mobile Phone by Automatic Test (1xEV-DO mode)
2.3.11 Testing a Dual Band Mobile Phone by Manual Test (1xEV-DO mode)
2.3.13 Testing a Mobile Phone by TX Analyzer
2.3.14 Testing a Mobile Phone by Signal Generator
2.4 Ending a Test

Preparation for Each Test

CAUTION Make sure that the input signal level does not exceed the maximum level allowed. Otherwise, an accident or Tester failure may occur.

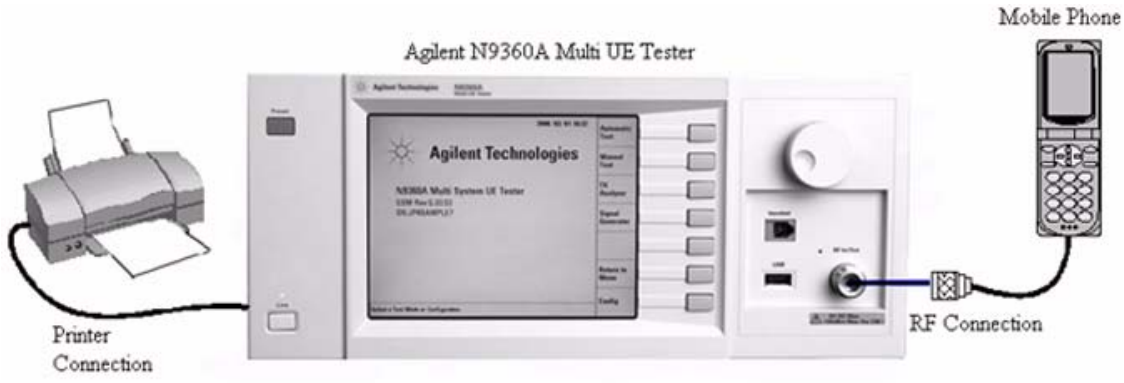
The following procedures are required before starting each test.

System Requirement

The following equipment are required to set up a test system:

- The Agilent N9360A Multi UE Tester.
- An RF cable, RF antenna coupler (type N9360A-A02) to connect RF signals from/to the mobile phone under test.
- A printer and a printer cable if required.

Figure 4-2 Typical Test Setup of the Tester



Connection

Connecting a Mobile Phone

Connect a mobile phone to the Tester using any of the following methods:

1 **Using the Antenna Coupler**

Connect the Antenna Coupler (type N9360A-A02) connector to the RF IN/OUT connector on the front panel of the Tester. Insert the antenna of the mobile phone into the hole of the Antenna Coupler.

2 Using a User-Supplied RF Cable

If you have a cable which connects between the RF port of the mobile phone and the RF IN/OUT connector of the Tester, use it instead of the Antenna Coupler.

3 Using the Shield Case

Connect the ANTENNA COUPLER IN/OUT connector of the shield case (type N9360A-S01) to the RF IN/OUT connector on the front panel of the Tester. Place the mobile phone on the antenna coupler board inside the shield case using the horizontal and vertical holders.

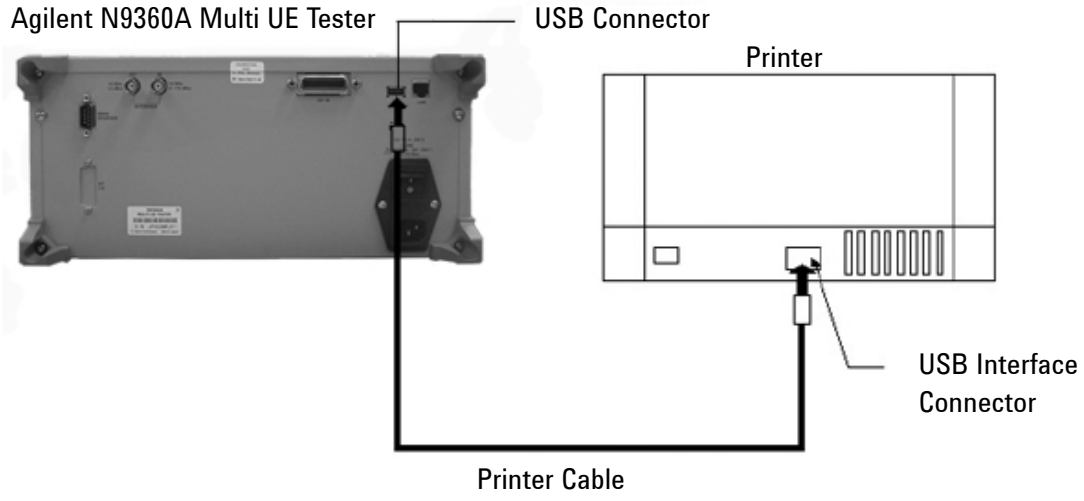
Connecting a Printer

To print screen hard copies, if required, connect a printer to the Tester as follows using an appropriate interface cable between the USB connector on the rear panel of the Tester and the USB interface connector of the printer. Use the recommended printer shown below. Also, refer to the manual of the printer for operating the printer.

Recommended printer (operation confirmed by Agilent):

EPSON PM-G800

Figure 4-3 Connecting a Printer



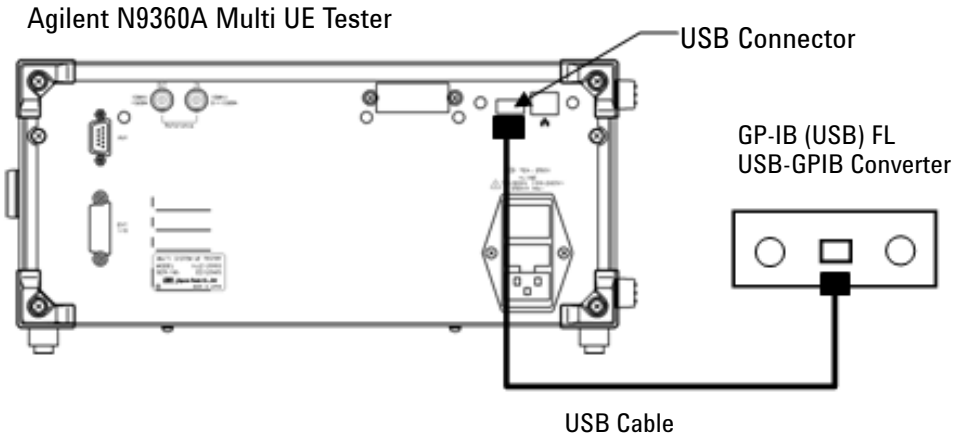
Using a USB Memory Device

To save graphic files of screen in a USB memory device, connect the USB memory device to the USB connector on the front panel of the Tester. Graphic files are saved in Portable Network Graphics (PNG) format and with a file name: **COPY** and the number from 00 to 99 which automatically increases.

Connecting a USB-GPIB Converter

When you control the Tester using a GP-IB interface, use the USB-GPIB converter (Option E02). Connect the USB-GPIB converter and the USB connector on the rear panel of the Tester with a USB cable.

Figure 4-4 Connecting a USB-GPIB Converter



Test Procedure

Activating the Tester

To activate the Tester, turn on the LINE switch on the rear panel of the Tester and press the LINE switch on the front panel.

NOTE Provide warm up of 30 minutes or more to ensure correct measurement.

General Operation

Display Annotation

Depending on functions and test situations, there are several types of screen. Figure 4-5 shows the common areas on the typical screen.

Figure 4-5 Display Annotation

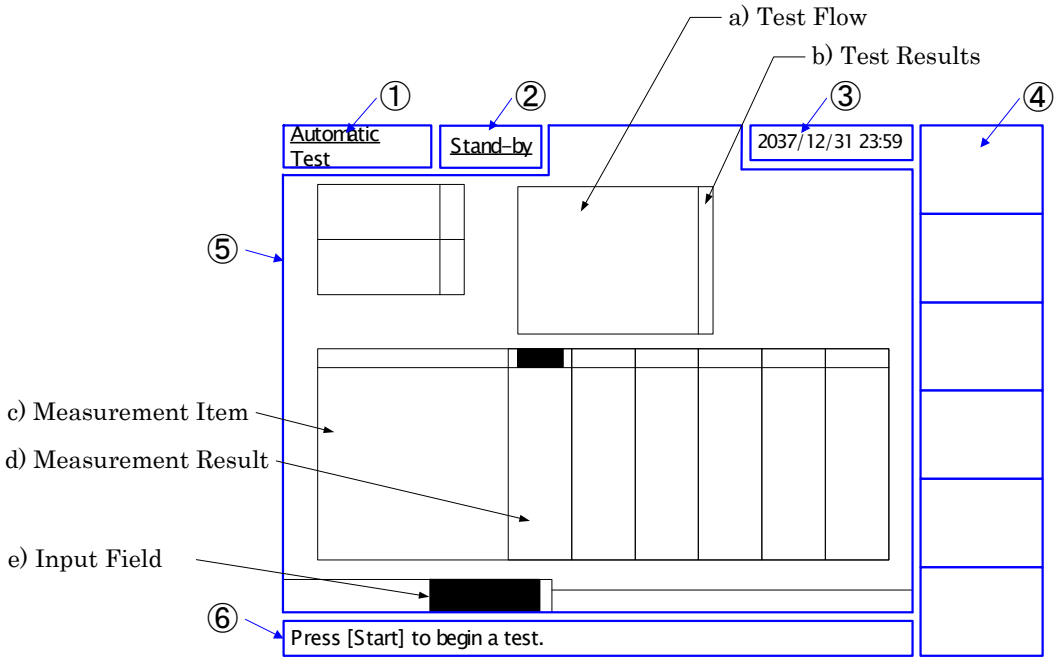


Table 4-1 Description of the Display Annotation

No.	Name	Description
1	Function Mode Field	The current function mode, for example, Automatic Test, Manual Test, TX Analyzer and Configuration, is displayed in this field.
2	Status Display Field	The current operation status, for example, Stand-by, Measuring, Test Sequence and Test Condition, is displayed in this field.
3	Date/Time Field	The current date and time are displayed in this field.
4	Softkey Menu Field	The softkey labels are displayed in this field. Each label defines the function of the corresponding softkey immediately next to the right of the label.
5	Screen Field	A variety of information is displayed in this field depending on the operation status. For example, in Automatic Test, the following information is displayed in this field. a) Test Flow: Location Update, MS Call, BS Call, etc. b) Test results: P (pass) or F (fail). c) Measurement Items: Peak TX Power, Frequency Error, etc. d) Measurement Results: Pass/Fail or values. e) Input field: Highlighted fields.
6	Message Field	Operation message for test flow steps are displayed in this field. In this field, the word surrounded by bracket ''()'' denotes the softkey.

Selecting Items and Changing Parameters

Depending on the function modes, the Tester has a number of input fields to be specified or defined to configure a test flow, test sequence and test condition. The allowable ranges for those input fields depending on the radio systems are explained in this manual. For a quick overview, refer to Appendix A Input Items and Allowable Options or Ranges on page A-1.

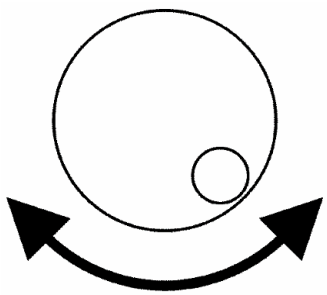
Selecting an Input Field and Specifying a Value

All input fields to be specified are highlighted and the circular cursor is shown next to one of them.

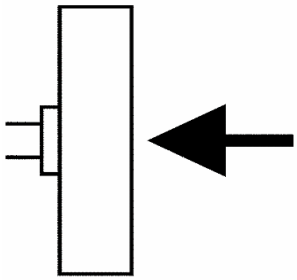
To start, first select an input field and then specify a value to the input field by the following procedure:

1 Rotate the CURSOR CONTROL knob clockwise to move the cursor downward or right, or rotate it counterclockwise to

move it upward or left, and place it next to the input field you want to change.



2 Press the CURSOR CONTROL knob once. The highlighted input field changes to normal display and circular cursor changes to a triangular one.



3 Rotate the CURSOR CONTROL knob clockwise or counterclockwise to find the values to specify for it.

4 Press the CURSOR CONTROL knob to enter the desired value in the input field. The input field is highlighted again and the triangular cursor returns to the circular one.

Storing Numeric Values

For numeric input fields such as channel numbers and relevancies of amplitude, you can store up to four numeric values into the memory softkey menus with the following procedure:

1 Move the cursor to one of the numeric input fields of channels and relevancies of amplitude.

2 Press the CURSOR CONTROL knob to select the field. The softkey menu as Figure 4-6 is displayed on the screen. The four memory softkeys show the values previously stored in the memories if any.

Figure 4-6 Value Storage Softkeys

3 Set a numeric value in the input field with the CURSOR CONTROL knob.

4 Press the **Store Value to Memory >>** softkey. The softkey menu including **Memory 1**, **Memory 2**, **Memory 3** and **Memory 4** softkeys as shown in Figure 4-7.

Figure 4-7 Memory Function

5 Press one of the memory softkeys from **Memory 1** to **Memory 4** where you desire to store that value.

6 The memory softkey menu returns to the state in step 2 showing the value newly stored.

7 Press the CURSOR CONTROL knob to set the value into the field. The softkey menu returns to that of step 1.

8 Repeat the procedure from step 1 to step 7, if required.

Recalling Numeric Values

1 Move the cursor to one of the numeric input fields of channels or relevancies of amplitude.

2 Press the CURSOR CONTROL knob to select the field. The softkey menu displayed as shown in Figure 4-8. The four memory softkeys show the values previously stored in the memories if any.

Figure 4-8 Value Storage Softkeys

3 Press **Memory 1**, **Memory 2**, **Memory 3** or **Memory 4** softkey to enter the stored value to the field.

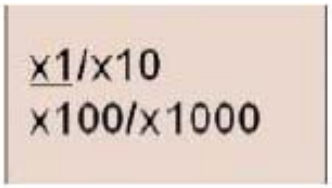
4 The value is entered to the field.

5 Press the CURSOR CONTROL knob to return the softkey menu to that of step 1.

Changing Magnification Softkey

Press the CURSOR CONTROL knob to select a numeric input field, such as channels and relevancies of amplitude. A changing magnification softkey as in Figure 4-9 is displayed with memory softkeys. A selected magnification is underlined.

Figure 4-9 Changing Magnification Softkey



Pressing this softkey changes the multiplier from 1 to 1000.

Rotating the CURSOR CONTROL knob clockwise changes the numeric value in the field by an increment, and counterclockwise changes the value by a decrement. The following multiplies are variable.

- ×1: Increment or decrement by 1.
- ×10: Increment or decrement by 10.
- ×100: Increment or decrement by 100.
- ×1000: Increment or decrement by 1000.

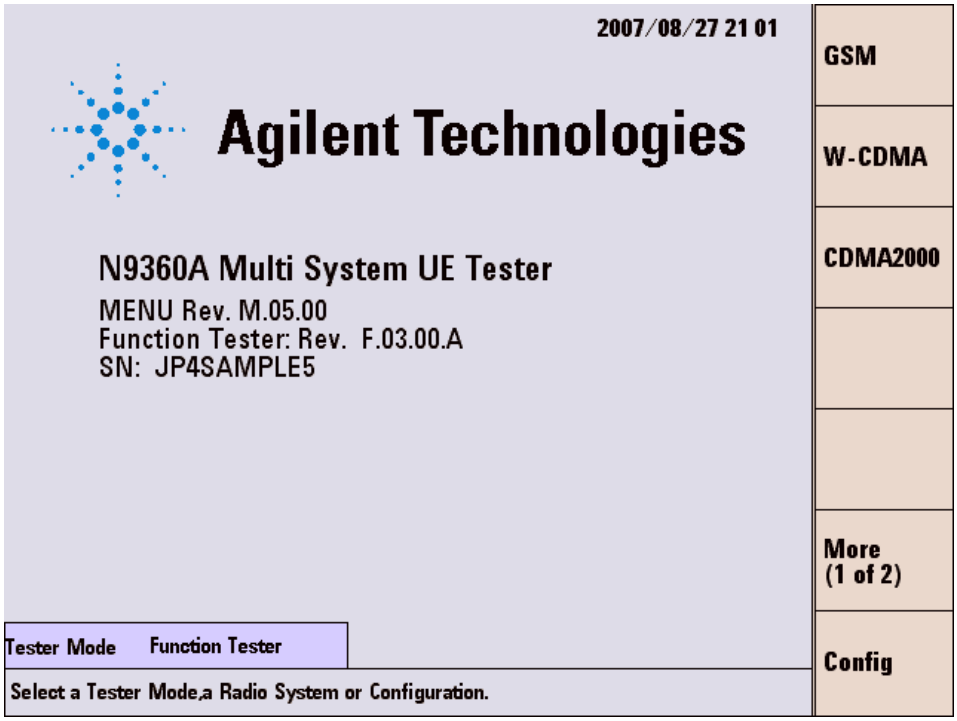
Selection of System

On this screen, select a system from GSM, W-CDMA or cdma2000.

NOTE This *N9360A CDMA2000 User Manual* describes only the cdma2000 system. Refer to the *N9360A GSM User Manual* for GSM system and the *N9360A W-CDMA User Manual* for W-CDMA system.

1 Turn on the Tester. The [Top Menu] screen is displayed as Figure 4-10.

Figure 4-10 [Top Menu] Screen



2 Press the **CDMA2000** softkey to select the cdma2000 system. The [Initial] screen for cdma2000 is displayed after the Tester completes its initialization and self-test routine.Figure 4-11 shows the [Initial] screen of the MC-1x mode. When shifting the 1xEV-DO mode, press the **CDMA Mode>>**, **1xEV-DO** softkey. (See Figure 4-12) Or, specify the CDMA Mode field on the [Configuration: Test Condition] screen obtained to press the **Config** and **Test Condition** softkeys.

Figure 4-11 [Initial] Screen MC-1x Mode

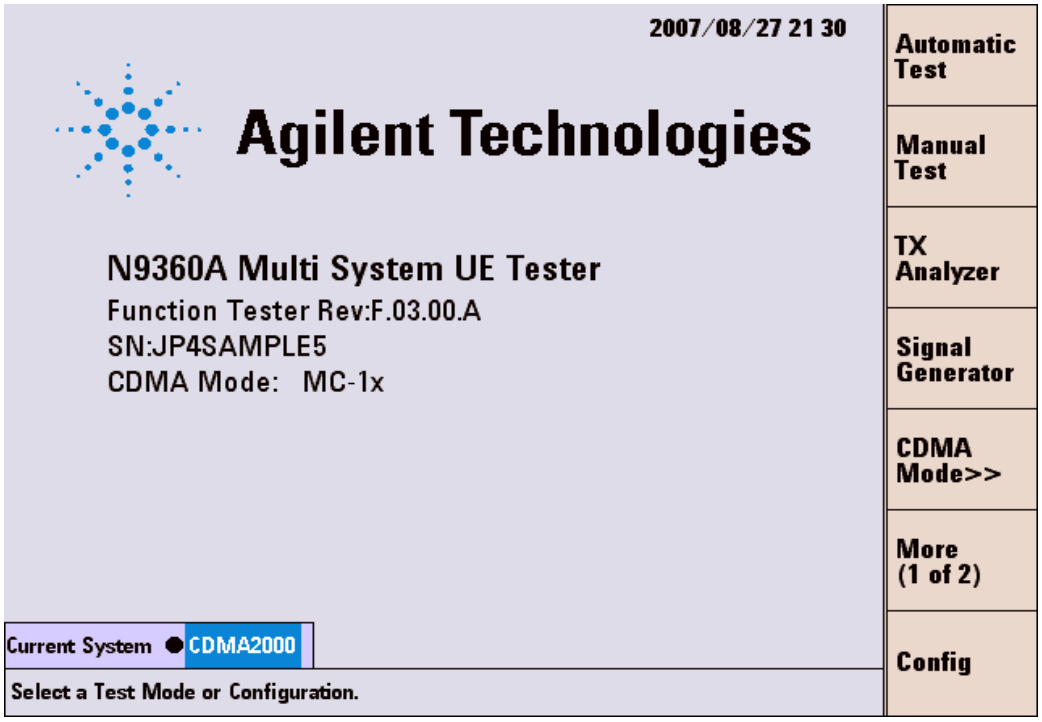
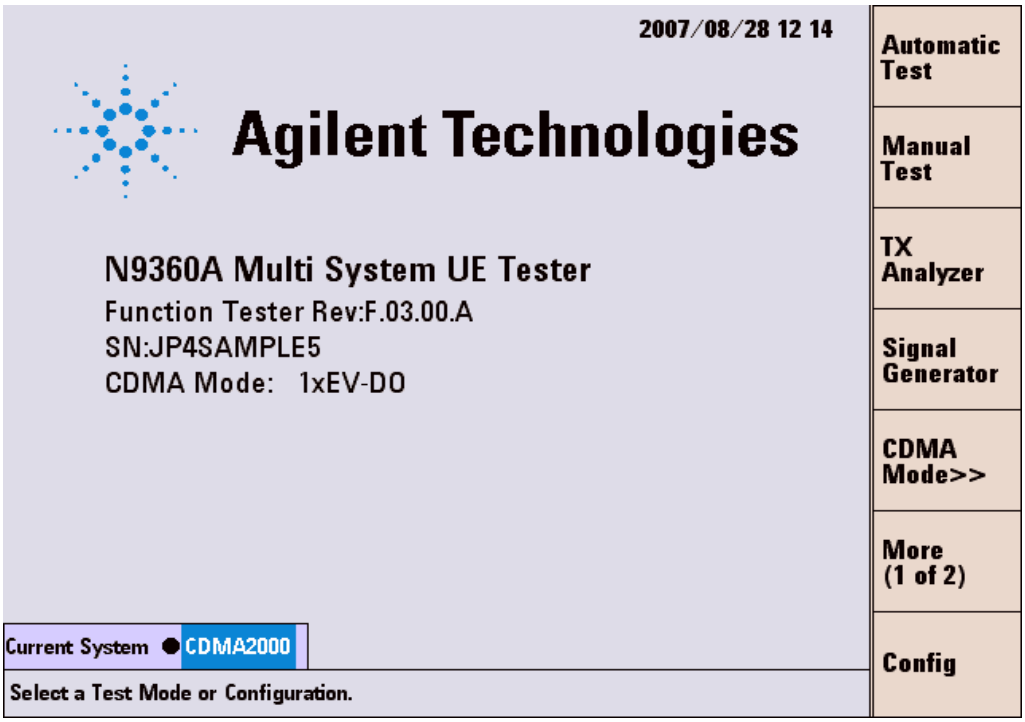


Figure 4-12 [Initial] Screen 1xEV-DO Mode



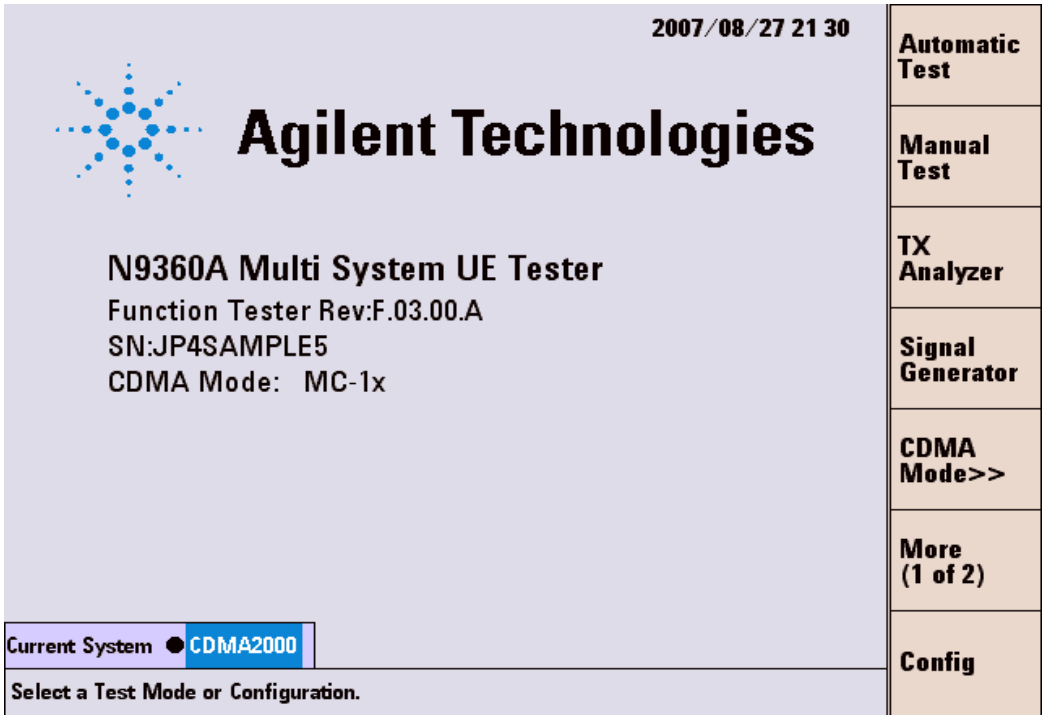
NOTE

When the Autoboot function is set to `FUNC GSM`, `FUNC WCDMA` or, `FUNC CDMA2000`, the Tester will automatically select the GSM, W-CDMA or cdma2000 system mode if no softkey is pressed within the specified time (10 to 60 seconds). When the Tester is shipped, the AutoBoot function is set to `None`.

Selection of the Function Mode on the Initial Screen

Press one of the softkeys to select a function mode.

Figure 4-13 [Initial] Screen MC-1x Mode



Softkey Menu Field

Softkey menu 1

- **Automatic Test**: Starts the Automatic Test. Refer to Testing a Dual Band Mobile Phone by Automatic Test (MC-1x Mode) and Tests using 1xEV-DO Mode(Option C02).
- **Manual Test**: Starts the Manual Test. Refer to Testing a Dual Band Mobile Phone by Manual Test (MC-1x Mode), Testing a Dual Band Mobile Phone by Manual Test (1xEV-DO Mode).
- **TX Analyzer**: Displays the [TX Analyzer] screen. Refer to TX Analyzer.
- **Signal Generator**: Displays the Signal Generator. Refer to Signal Generator.
- **CDMA Mode>>**: Shifts the system to CDMA Mode. The Sub Softkey is displayed on the screen and you can change the mode to **MC-1x** or **1xEV-DO** when this softkey is pressed. The C02 option is required to install.
- **More (1 of 2)**: Displays the softkey menu 2.

- **Config**: Displays the [Configuration] screen to set parameters. Refer to Configuration.

Softkey menu 2

- **Print Screen**: Prints the screen hard-copy or stores the screen image in the USB memory device, according to the **Printer** field setting on the [Configuration] screen.
- **Return to Menu**: This softkey is not for selecting a function mode. The screen returns to the [Top Menu] screen when this softkey is pressed. Refer to Return to Menu Screen for detail.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Softkey menu 3

- **MC-1x**: Changes to the MC-1x mode of the **CDMA Mode**. The C01 option is required.
- **1xEV-DO**: Changes to the 1xEV-DO mode of the **CDMA Mode**. The C01 and C02 options are required.
- **Cancel**: Cancels selecting the mode and returns to the Softkey Menu 1.

Selection of Protocol Revision

The **3GPP2 Config** on the [Configuration: Test Condition] screen sets the MC-1x and 1xEV-DO protocol revision.

The relationship of MC-1x and 1xEV-DO protocol revision and the **3GPP2 Config** setting is shown in Table 4-2.

Table 4-2 Relationship of MC-1x/1xEV-DO protocol and 3GPP2 Config

3GPP2 Config	MC-1x protocol	1xEV-DO protocol
1	Release 0 (Rel. 0)	Release 0 (Rel. 0)
2	Release A (Rel. A)	
3	Release 0 (Rel. 0)	Revision A (Rev. A)
4	Release A (Rel. A)	

Correction

Actual Input/Output Level and Correction

1 Actual Output Level and Correction in Automatic Test (Except RF test), Manual Test, and Signal Generator

Output signal level of the Tester is corrected according to cable loss, coupling loss, and etc. Some of parameters should be set properly.

Actual output level (for downlink signal) at the RF IN/OUT connector in the Automatic Test mode (except RF test), the Manual Test mode and the Signal Generator mode is calculated by the following equation.

$$OutputLevel = BsLevel + LossRFOut$$

Where,

OutputLevel = Actual output level at the RF IN/OUT connector.

BsLevel = Setting value at the **RF Level** on the [Manual Test] screen, **Amplitude** on the [Signal Generator] screen, **Amplitude** on the [TX Analyzer] screen, **Max TX Power BS Level**, **Min TX Power BS Level**, **Measurement BS Level**, **FER BS Level** (when MC-1x Mode is selected), **PER BS Level1**, **PER BS Level2** , **PER BS Level3** (when 1xEV-DO Mode is selected) on the [Configuration: Test Sequence] screen.

LossRfOut = Setting value at the **RF Out** field on the [Configuration: Test Condition (Loss)] screen.

There is a restriction that the **OutputLevel** cannot exceed –18.0 dBm, so at each parameter, the **BsLevel** and the **LossRfOut** must be set to meet this restriction.

2 Actual Input Signal Level and Correction in Automatic Test (Except RF test), Manual Test, and TX Analyzer

Input signal level of the Tester (for uplink signal) is corrected according to cable loss, coupling loss, and etc. Some of parameters should be set properly.

The measurement results of RF test in the Manual Test mode and the TX Analyzer mode are corrected by the following equation.

$$InputLevel = MsLevel + LossRFIn$$

Where,

InputLevel = Corrected measured value of the Tester.

MsLevel = Input signal level of the mobile phone at the **RF IN/OUT** connector.

LossRfIn = Setting value at the **RF In** field on the [Configuration: Test Condition (Loss)] screen.

3 Actual Output Level and Correction for RF Test in Automatic Test

Output signal level of the Tester is corrected according to cable loss, coupling loss, and etc. Some of parameters should be set properly.

Actual output level (for downlink signal) at the **RF IN/OUT** connector for RF test in the Automatic Test mode is calculated by the following equation.

$$OutputLevel = BsLevel + LossRFOut + AttOut$$

Where,

OutputLevel = Actual output level at the **RF IN/OUT** connector.

BsLevel = [Configuration: The set value when the followings are specified for the Test Sequence] screen: **BS Level**, **Measurement BS Level**, **Max Tx Power BS Level**, **Min Tx Power BS Level**, **FER BS Level** (when MC-1x is selected), **PER BS Level1**, **PER BS Level2** (when 1xEV-DO is selected).

LossRfOut = Setting value at the **RF Out** field on the [Configuration: Test Condition (Loss)] screen.

AttOut = Setting value at the **ATT Out** field on the [Configuration: Test Sequence] screen.

There are two restrictions. The **OutputLevel** cannot exceed –18.0 dBm, so each parameter, the **BsLevel**, the **LossRfOut** and the **ATT Out**, must be set to meet this restriction. The other restriction is that the sum of the **LossRfOut** and the **ATT Out** must be set more than or equal to 0.

4 Actual Input Signal Level and Correction for RF Test in Automatic Test

Input signal level of the Tester (for uplink signal) is corrected according to cable loss, coupling loss, and etc. Some of parameters should be set properly.

The measurement results of RF test in the Automatic Test mode are corrected by the following equation.

$$InputLevel = MsLevel + LossRFIn + AttIn$$

Where,

InputLevel = Corrected measured value of the Tester.

MsLevel = Input signal level of the mobile phone at the **RF IN/OUT** connector.

LossRfIn = Setting value at the **RF IN** field on the [Configuration: Test Condition (Loss)] screen.

AttIn = Setting value at the **ATT In** field on the [Configuration: Test Sequence] screen.

There is a restriction that the sum of the **LossRfIn** and **ATT In** must be set more than or equal to 0.

Entering Loss on the Configuration: Test Condition (Loss) Screen

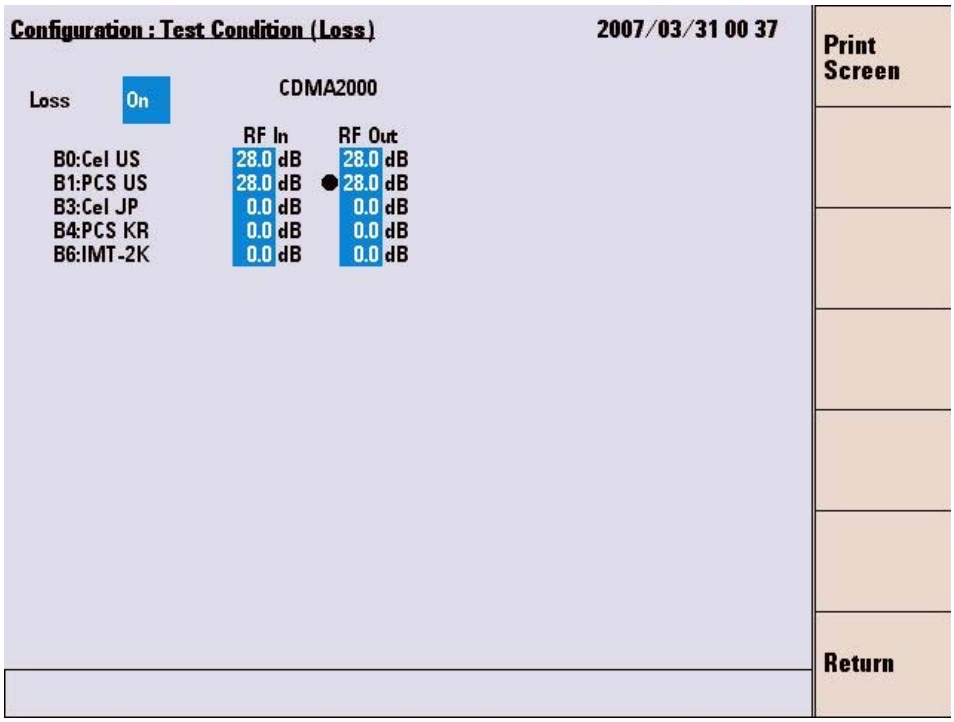
Determine and enter the loss values caused by the antenna coupler, RF cable, or shield case used to connect the mobile phone to the Tester. If the **Loss** is set to `On`, these path loss values are applied to all through the test flow for the band system being currently tested.

Correction of input/output signal is described in Actual Input/Output Level and Correction on page 4-19. Also, refer to Entering Channel Attenuations on the Configuration: Test Sequence Screen on page 4-23 for the correction of RF test in Automatic Test.

1 Press the **CDMA2000** softkey on the [Top Menu] screen to activate the cdma2000 system. Refer to Selection of System on page 4-14 for detail.

2 Press **Config > Test Condition > Loss** softkeys from the [Initial] screen to display the [Configuration: Test Condition (Loss)] screen.

Figure 4-14 [Configuration: Test Condition (Loss)] Screen



3 Set the **Loss** field to `On` with the CURSOR CONTROL knob.

4 Enter the appropriate loss values, depending on the band, in the `RF In` and `RF Out` fields with the CURSOR CONTROL knob. These loss values are used all through the test flow.

5 Press the **Return** softkey to return to the [Initial] screen.

Entering Channel Attenuations on the Configuration: Test Sequence Screen

This section describes correction for RF test results in Automatic Test. Each channel (RFCH) path loss value can be set on the [Configuration: Test Sequence] screen. This is the RF test correction function in addition to the loss function in the [Configuration: Test Condition (Loss)] screen.

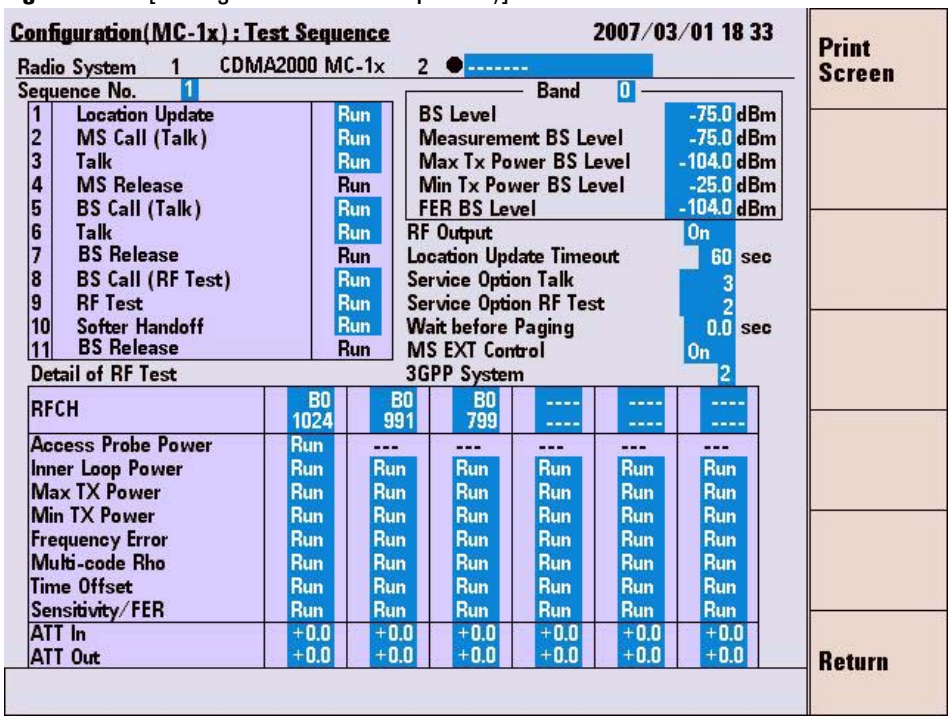
In addition to entering the loss values on the [Configuration: Test Condition (Loss)] screen, you can also enter the attenuation values to be used to correct the RF test results with these values at each traffic channel in the Automatic Test mode.

Determine and enter the appropriate attenuation values at each traffic channel with the following procedure, caused by the antenna coupler, RF cable or shield case to connect the mobile phone to the Tester.

1 Press the **CDMA2000** softkey on the [Top Menu] screen to activate cdma2000 system. Refer to Selection of System on page 4-14 for detail.

2 Press the **Config** softkey on the [Initial] screen, and then the **Test Sequence** softkey to display the [Configuration: Test Sequence] screen.

Figure 4-15 [Configuration: Test Sequence)] Screen



3 Enter the appropriate attenuation values, depending on the traffic channel, in the ATT In and ATT Out fields with the CURSOR CONTROL knob. These values are effective for the RF tests in the test flow.

4 Press the **Return** softkey twice to return to the [Initial] screen.

Testing a Dual Band Mobile Phone by Automatic Test (MC-1x Mode)

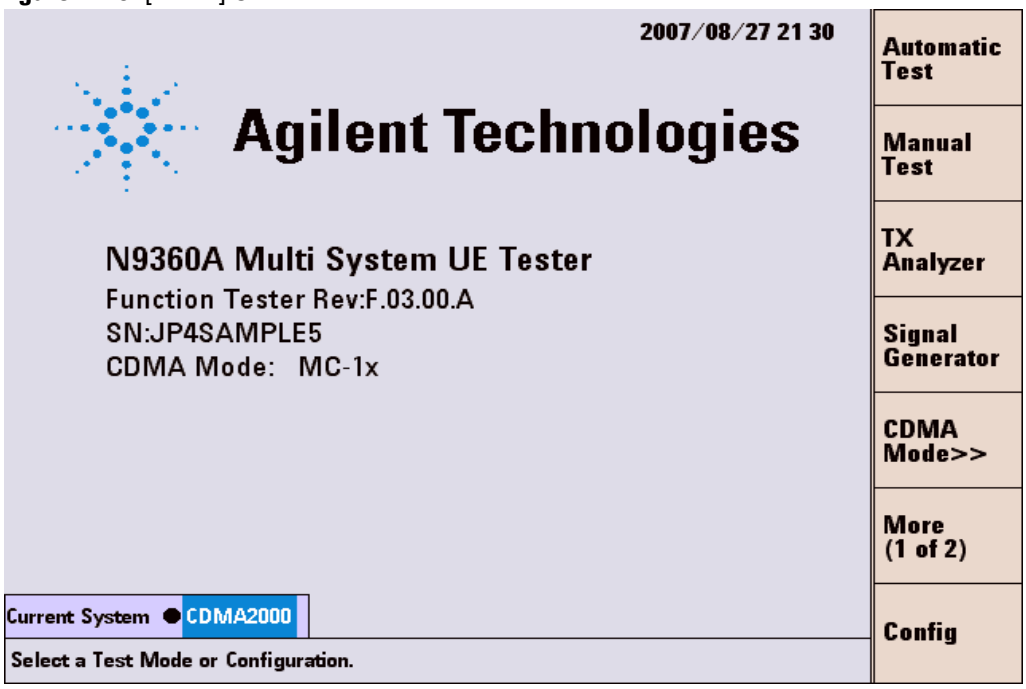
This section describes the operation method of the Tester and a dual band (B1:PCS US and B0:Cel US) mobile phone under the test by Automatic Test MC-1x mode.

This section shows the example of the Tester operation to test the mobile phone supporting B1:PCS US and B0:Cel US by using the Automatic Test mode. The handover from the B1:PCS US and B0:Cel US is performed during the test.

1 Turn on the Tester and select the cdma2000 system on the [Top Menu] screen. Refer to Selection of System on page 4-14 for selecting a system.

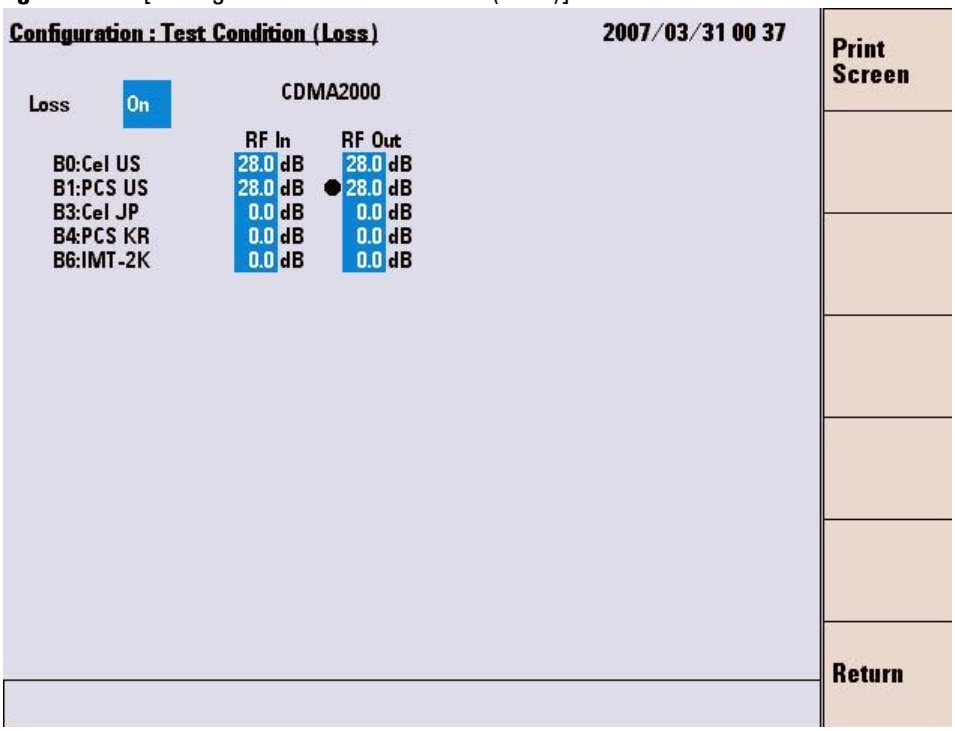
2 The [Initial] screen as Figure 4-16 is displayed after completion of initialization and self-test routine of the Tester.

Figure 4-16 [Initial] Screen



3 Press **Config > Test Condition > Loss** softkeys from the [Initial] screen to display the [Configuration: Test Condition (Loss)] screen specifying the **Loss** value.

Figure 4-17 [Configuration: Test Condition (Loss)] Screen



4 Press the **Return** softkey twice and then the **Test Sequence** softkey to display the [Configuration: Test Sequence] screen for required setting in Automatic Test.

Figure 4-18 [Configuration: Test Sequence1] Screen

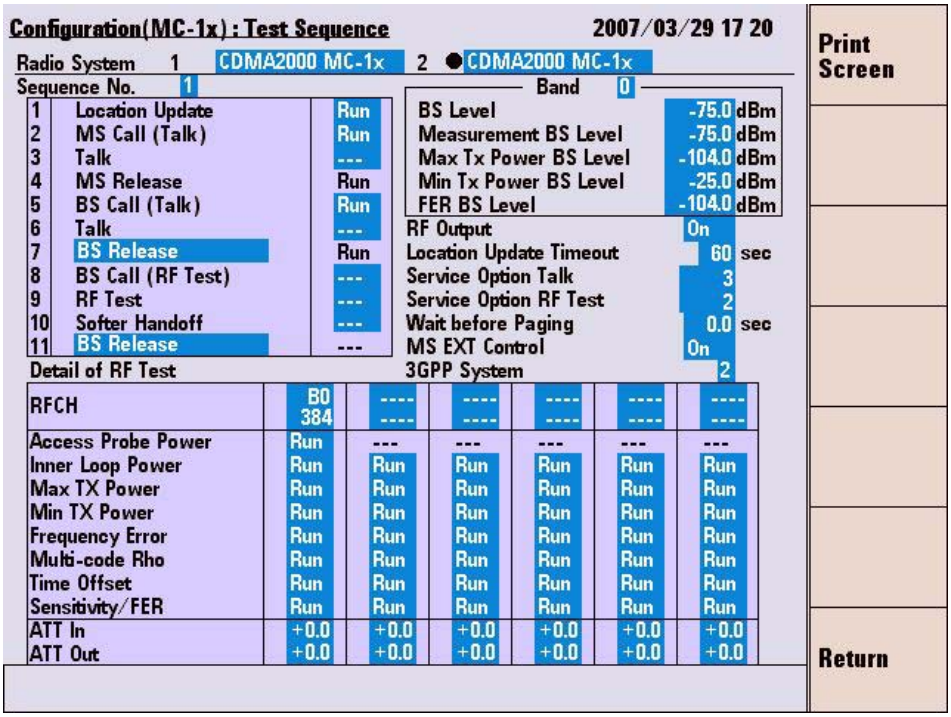
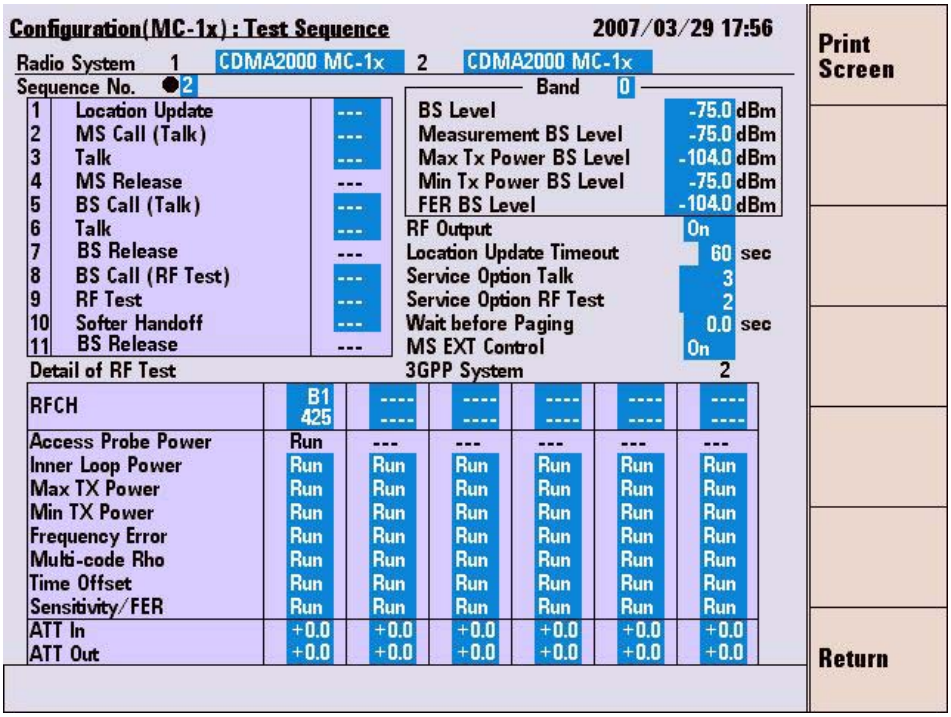


Figure 4-19 [Configuration: Test Sequence2] Screen

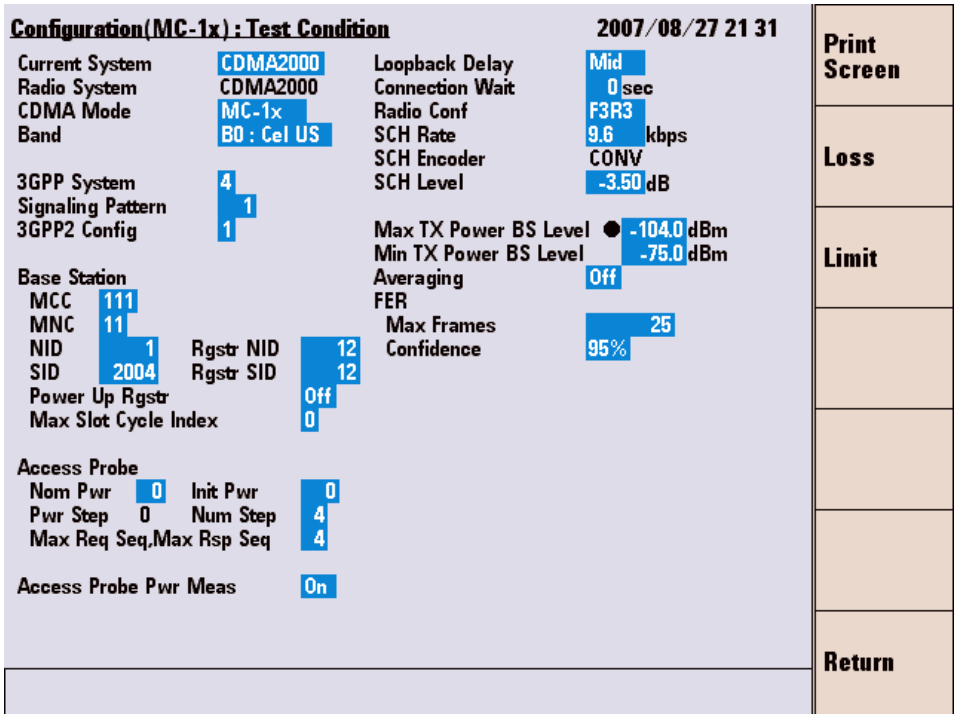


5 Set **CDMA2000 MC-1x** in **Radio System 1** and **2**, and set other fields as shown in Figure 4-18 and Figure 4-19.

6 Set Run at test item field which you want to execute in the test flow. Set Run at measurement item cell which you want to measure in the measurement item table.

7 Press the **Return** and then the **Test Condition** softkey to display the [Configuration: Test Condition] screen as Figure 4-20 to set the test condition.

Figure 4-20 [Configuration: Test Condition] Screen

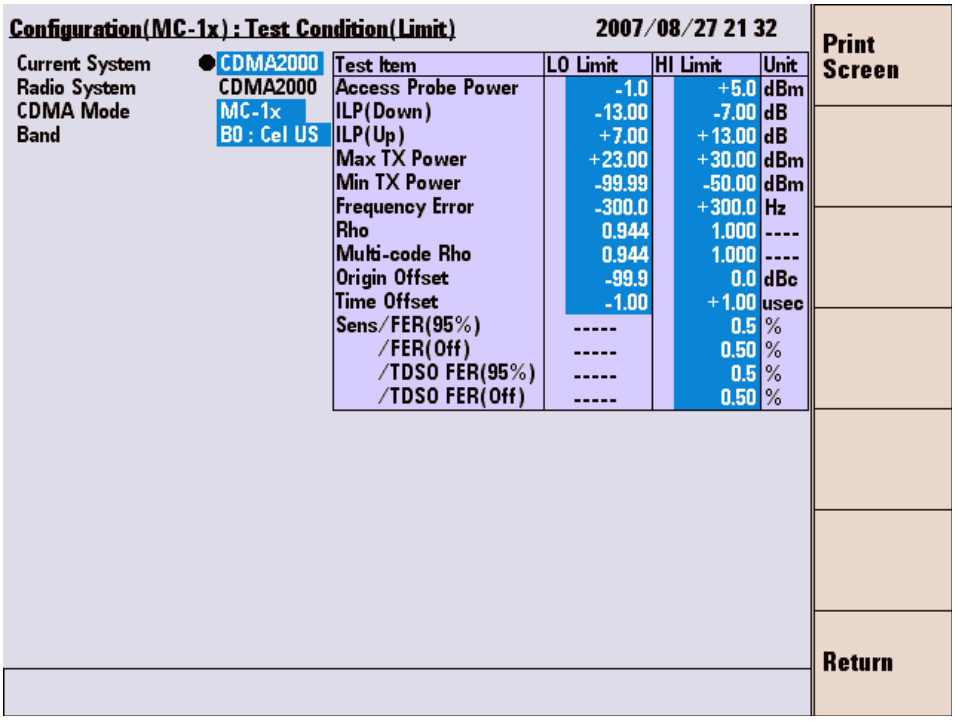


8 Set the fields of the test parameters as shown in the left and upper right side of Figure 4-20 with the CURSOR CONTROL knob.

9 Repeat step 8 to set the test condition for Cel US after replacing **B1:PCS US** to **B0:Cel US** at the **Band** field.

10 Press the **Limit** softkey to display the [Configuration: Test Condition (Limit)] Screen as Figure 4-21.

Figure 4-21 [Configuration: Test Condition (Limit)] Screen

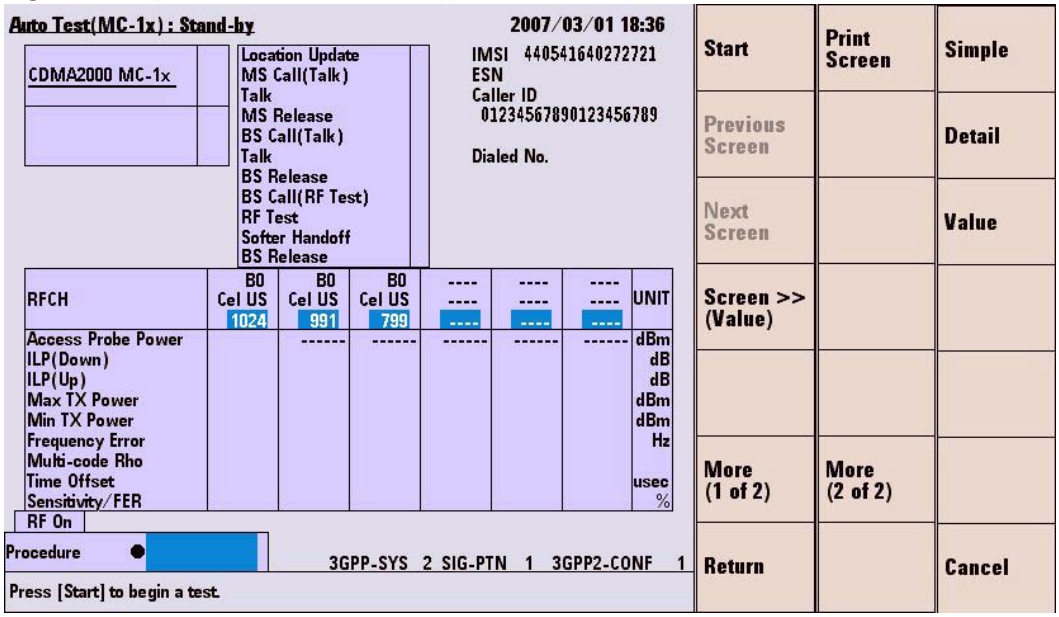


11 Set appropriate test limits in the cells of the test item table in the upper right side of Figure 4-21.

12 Repeat step 11 to set the test condition for Cel US after replacing **B1:PCS US** to **B0:Cel US** at the **Band** field.

13 Press the **Return** softkey three times and then the **Automatic Test** softkey to start Automatic Test. The [Auto Test: Stand-by] screen as Figure 4-22 is displayed. Press the **Screen>>** softkey to select the display mode. Select **Simple**, **Detail** or **Value** softkey. The following Figure 4-22 is a value screen which will show a measured value for each measurement item.

Figure 4-22 [Automatic Test: Stand-by] Value Screen (MC-1x)



14 Press the **Start** softkey to start a test. A screen status changes from Stand-by to Measuring.

15 Turn the mobile phone on. Wait for the mobile phone to camp on, and **P** is shown at the **Location Update** step.

16 At the **MS Call** step, make a call from the mobile phone. Dial an arbitrary number and press the **Off Hook** button on the mobile phone.

17 At the **Talk** step, check the quality of loop back voice and press the **Pass** or the **Fail** softkey according to its result.

18 At the **MS Release** step, press the **Off Hook** button on the mobile phone to terminate the call from the mobile phone.

19 At the **BS Call (Talk)** step, press the **Off Hook** button on the mobile phone to respond to the call from the Tester.

20 At the **Talk** step, check the quality of loop back voice and press the **Pass** or the **Fail** softkey according to its result.

21 At the **BS Release** step, the Tester automatically finishes the call.

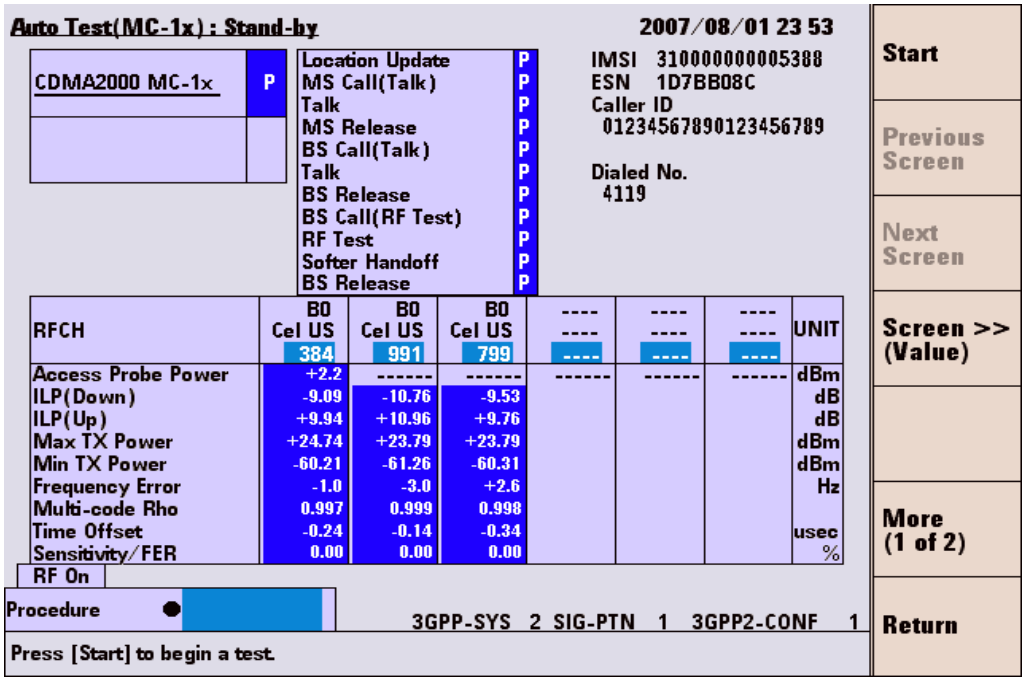
22 At the **BS Call (RF Test)** step, the mobile phone automatically responds to the call from the Tester.

23 As each step is running in the test flow, the corresponding test item field in the table is highlighted. While the RF Test step is highlighted, each of the measurement items is measured. So, you can see how it is being done.

24 At the **System Handoff** step, handover PCS US to Cel US. A screen status changes to Sequence2.

25 After the measurement is completed, a [Stand-by] Value screen is displayed to show the test results.

Figure 4-23 [Automatic Test: Stand-by] Value Screen (MC-1x)



26 If a printer is available, print the test results. Press the **More (1 of 2)** softkey, and then the **Print Screen** softkey to print a screen hardcopy.

27 Press the **More (2 of 2)** softkey to return to the previous softkey menu.

28 If you want to repeat the same test again, press the **Start** softkey.

Testing a Dual Band Mobile Phone by Manual Test (MC-1x Mode)

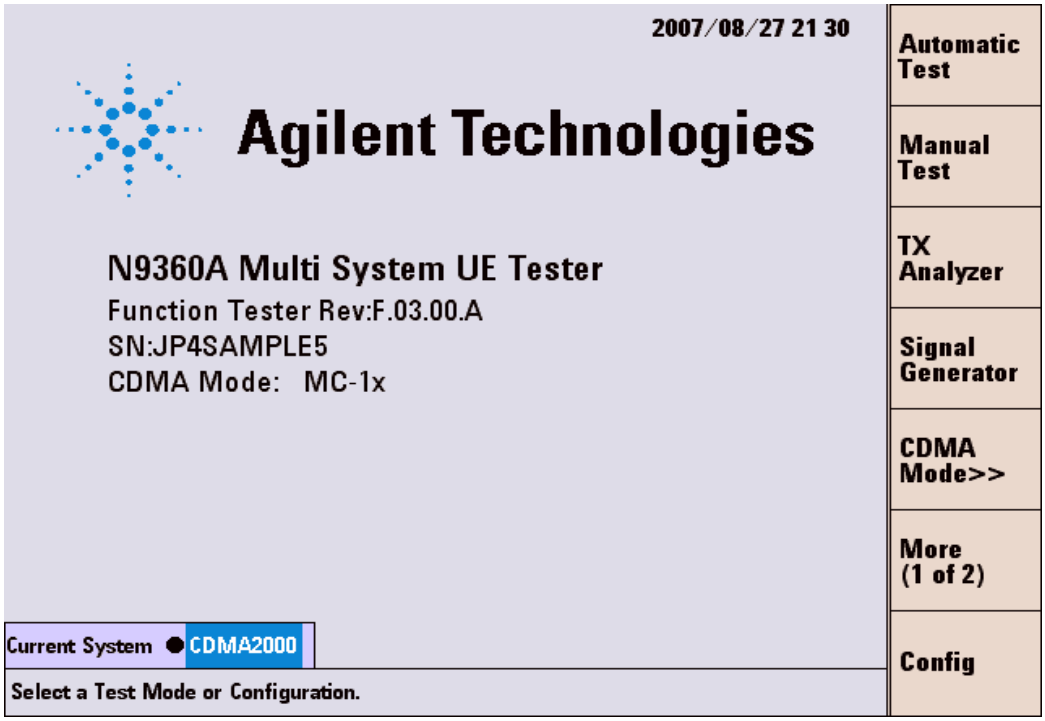
This section describes the operation method of the Tester and a dual band (B1: PCS US and B0: Cel US) mobile phone under the test by the Manual Test MC-1x mode.

This section shows the example of the Tester operation to test the mobile phone supporting B1:PCS US and B0:Cel US by using the Manual Test mode.

1 Turn on the Tester and select the cdma2000 system on the [Top Menu] screen. Refer to Selection of System on page 4-14 for selecting a system.

2 The [Initial] screen as Figure 4-24 is displayed after completion of initialization and self-test routine of the Tester. When CDMA Mode is not set to MC-1x, change to MC-1x mode by pressing the **CDMA Mode >>** and **MC-1x** softkeys.

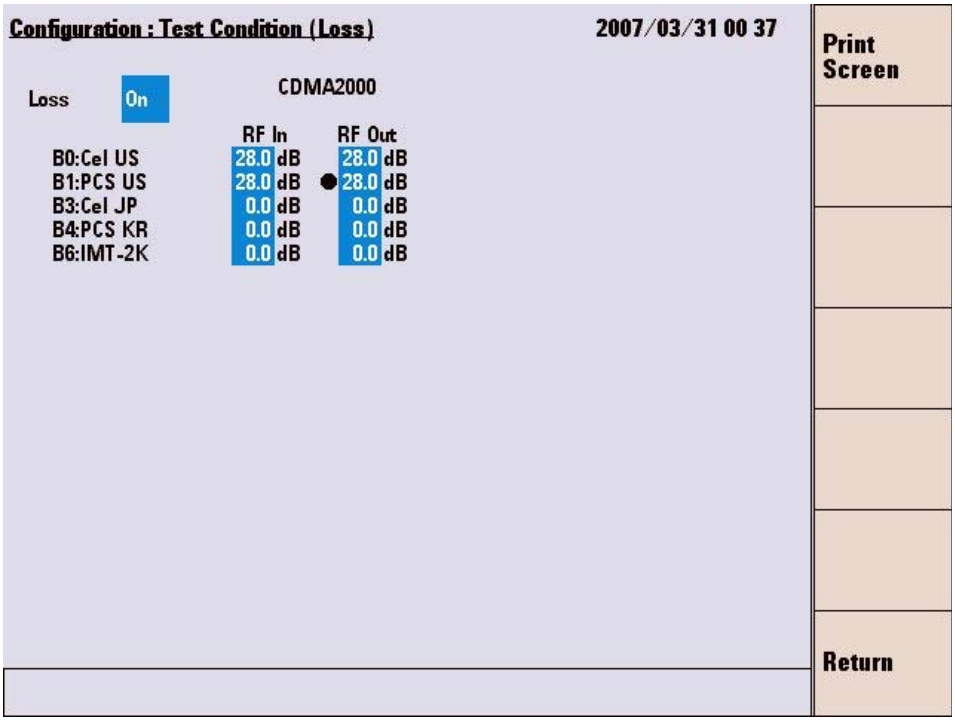
Figure 4-24 [Initial] Screen



3 Set the path loss value. Press the **Config > Test Condition > Loss** softkeys from the [Initial] screen to display the

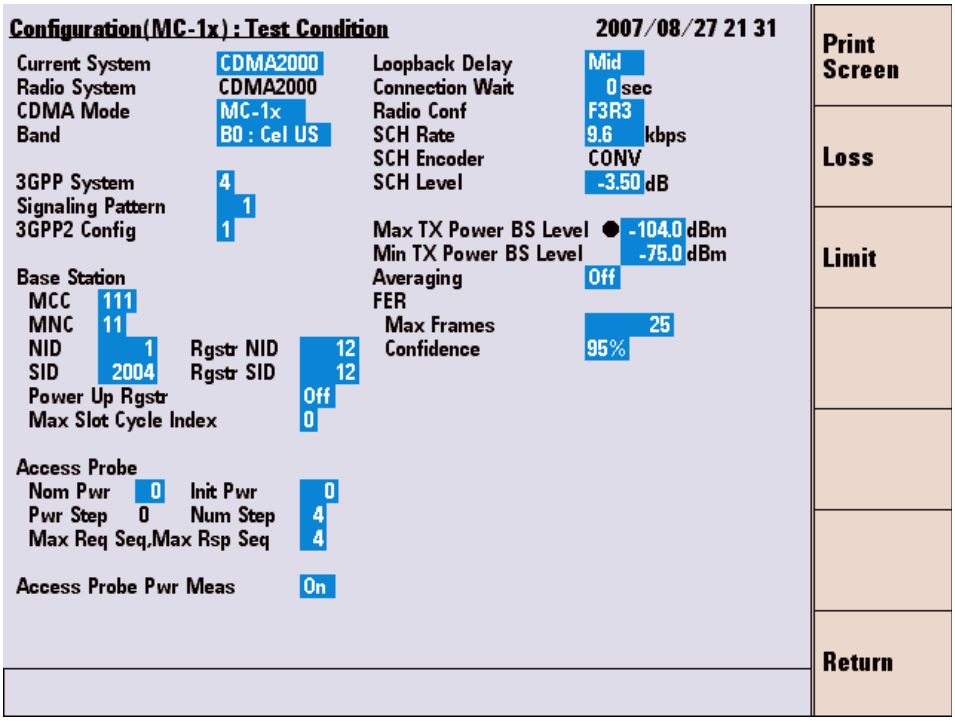
[Configuration: Test Condition (Loss)] screen specifying the **Loss** value. Refer to Entering Loss on the Configuration: Test Condition (Loss) Screen on page 4-22.

Figure 4-25 [Configuration: Test Condition (Loss)] Screen



4 Press the **Return** softkey to display the [Configuration: Test Condition] screen for required setting in Manual Test MC-1x mode.

Figure 4-26 [Configuration: Test Condition] Screen

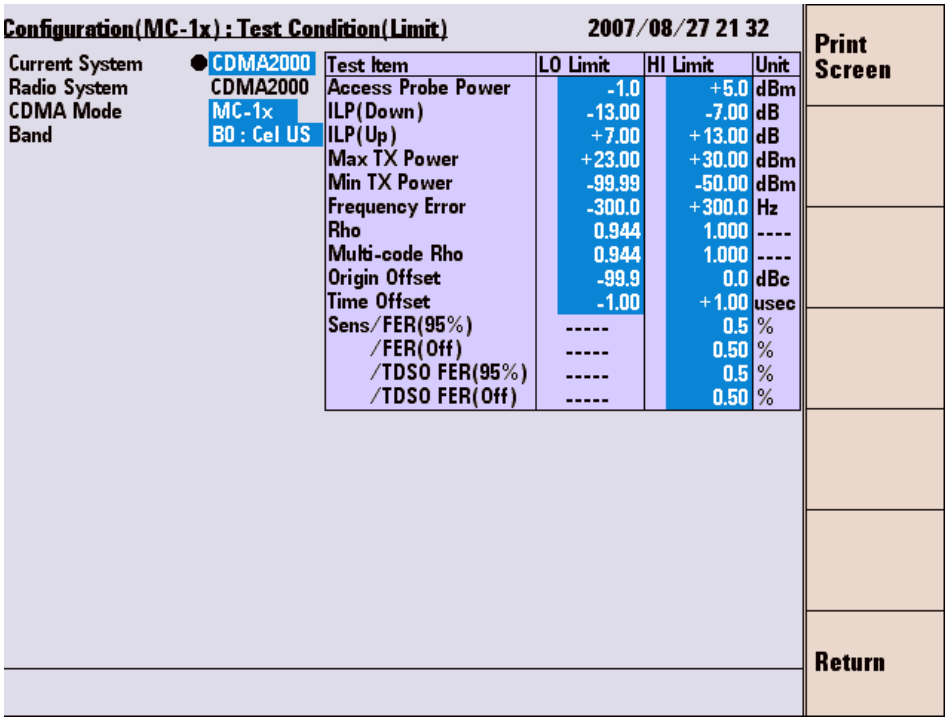


5 Select **MC-1x** at the **CDMA Mode** field with the CURSOR CONTROL knob. This value might be set to `MC-1x`, if the operation of step 2 is proceeded.

6 Set the SID and Rgstr SID fields for requiring number of the mobile phone.

7 Press the Limit softkey to display the [Configuration: Test Condition (Limit)] Screen as Figure 4-27.

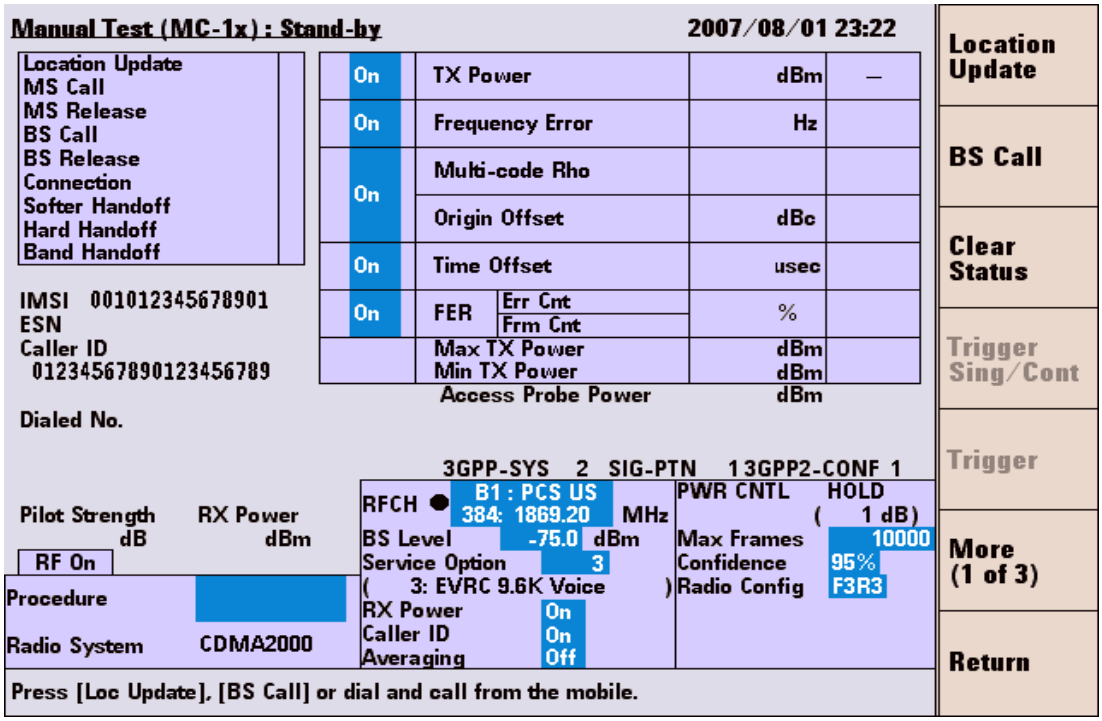
Figure 4-27 [Configuration: Test Condition (Limit)] Screen



8 Set the appropriate test limits in the cells of the test item table in the right side of the Figure 4-27.

9 Press the **Return** softkey three times and then the **Manual Test** softkey to start Manual Test. The [Manual Test: Stand-by] Screen (MC-1x) as Figure 4-28 is displayed. Set the RFCH to the control channel of the mobile phone.

Figure 4-28 [Manual Test: Stand-by] Screen (MC-1x)



10 Press the **Location Update** softkey, and turn the mobile phone on. Wait for it to camp on, and **P** is shown at the **Location Update** step.

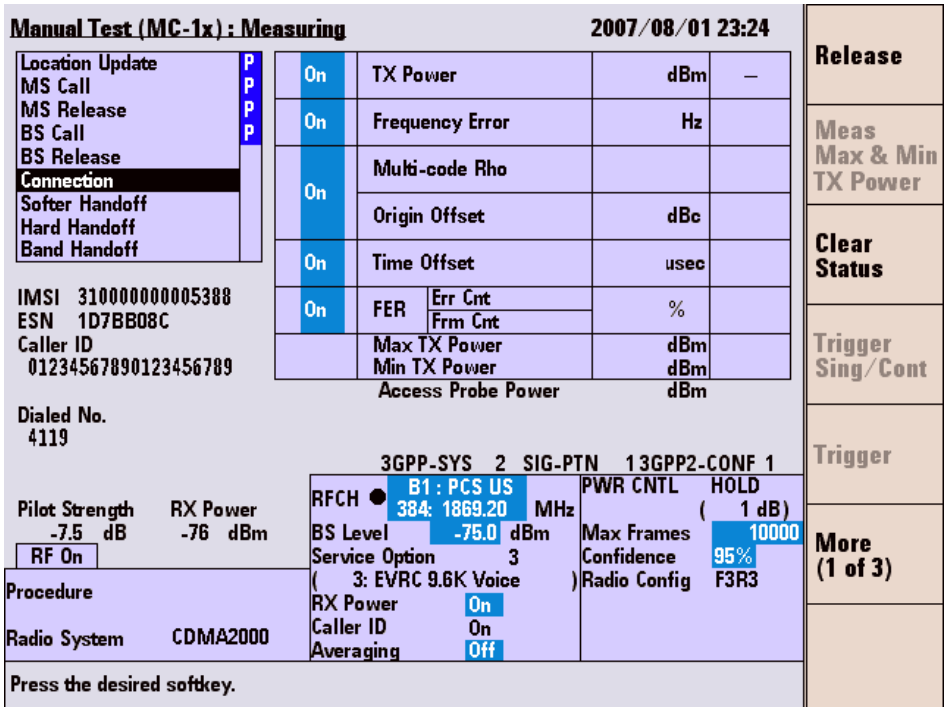
11 Set the **Service Option** field to 2, 9, 32 or 55 to start RF test. Set the **Service Option** field to 1, 3 or 17 to start voice test.

12 Start MS Call or BS Call with the following operation.

- Dial an arbitrary number and press the **Off Hook** button on the mobile phone.
- Press the **BS Call** softkey to start BS Call. Press **Off Hook** button on the mobile phone to respond to the call from the Tester.

13 After MS call or BS call, the screen as Figure 4-29 is displayed. **P** is shown at the **MS Call** or **BS Call** step as the test result of MS Call or BS Call, and **Connection** is highlighted.

Figure 4-29 [Manual Test: Measuring] Connection Screen (MC-1x)

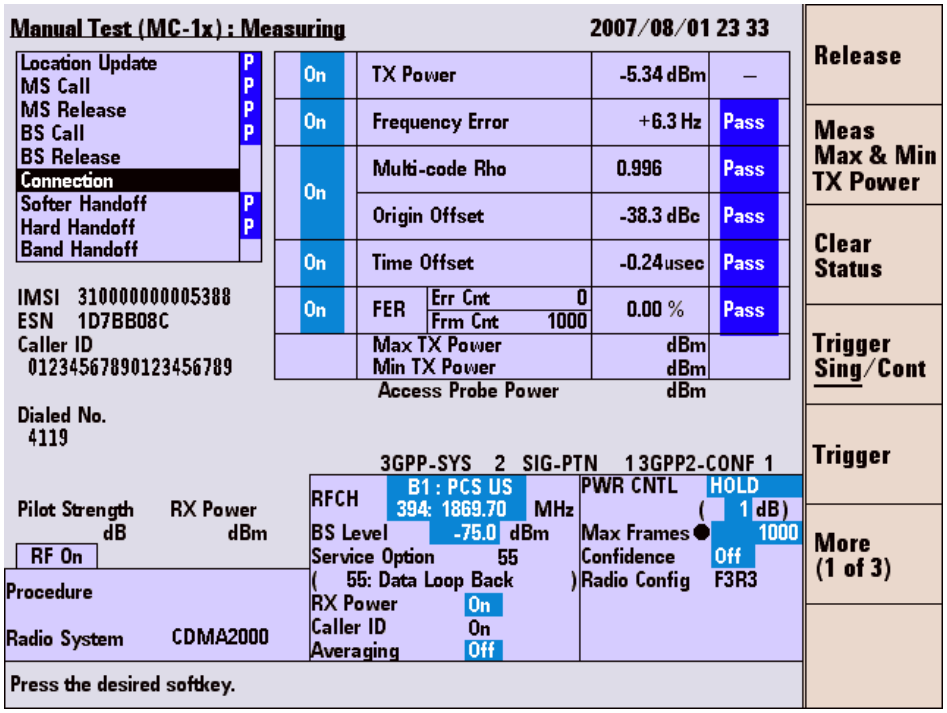


14 When starting the voice test, the Tester returns voice back to the mobile phone. When starting the RF test, refer the following descriptions.

- If the trigger mode is set to `Cont` (continuous), continuous measurement starts immediately.
- If the trigger mode is set to `Sing` (single), press the **Trigger** softkey to start single measurement.

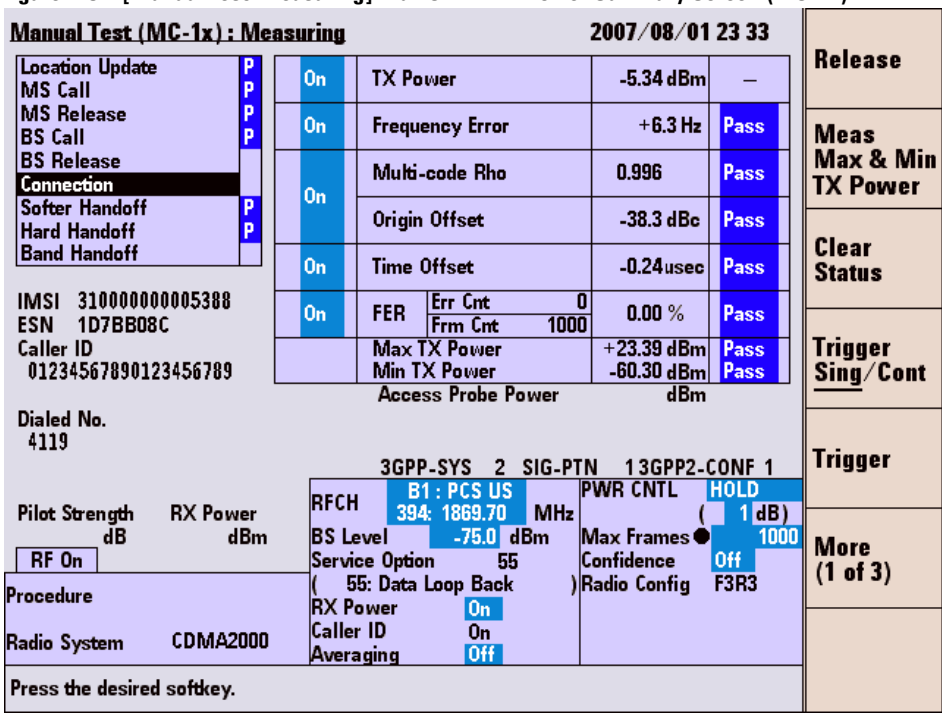
15 After the measurement is completed, a [Measuring] summary screen containing test results is displayed.

Figure 4-30 [Manual Test: Measuring] Result Screen (MC-1x)



16 Press the **Meas Max & Min TX Power** softkey to measure maximum and minimum TX Power. To measure maximum and minimum TX Power, set the **Service Option** field to either of 2, 9, 32 and 55.

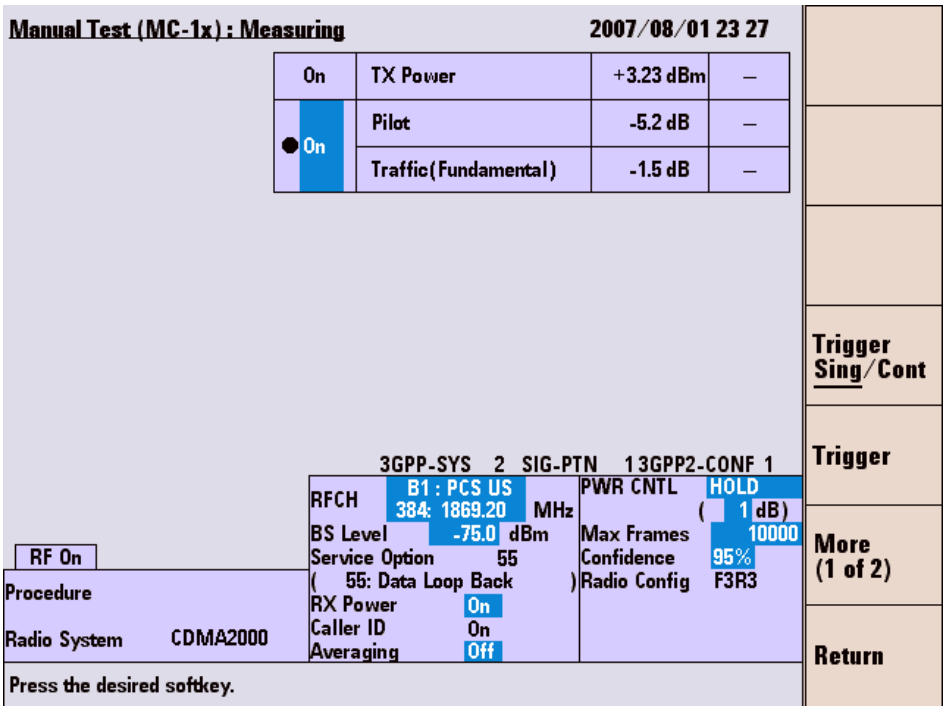
Figure 4-31 [Manual Test: Measuring] Max & Min TX Power Summary Screen (MC-1x)



17 If you want to measure the Code Domain Power, press the **More (1 of 3)** and **Code Power** softkeys to display the Code Domain Power measurement screen. To measure the Code Domain Power, set the **Service Option** field to either of 2, 9, 32 and 55.

- If the trigger mode is set to **Cont** (continuous), continuous measurement starts immediately.
- If the trigger mode is set to **Sing** (single), press the **Trigger** softkey to start single measurement.

Figure 4-32 [Manual Test] Code Domain Power Result Screen (MC-1x)

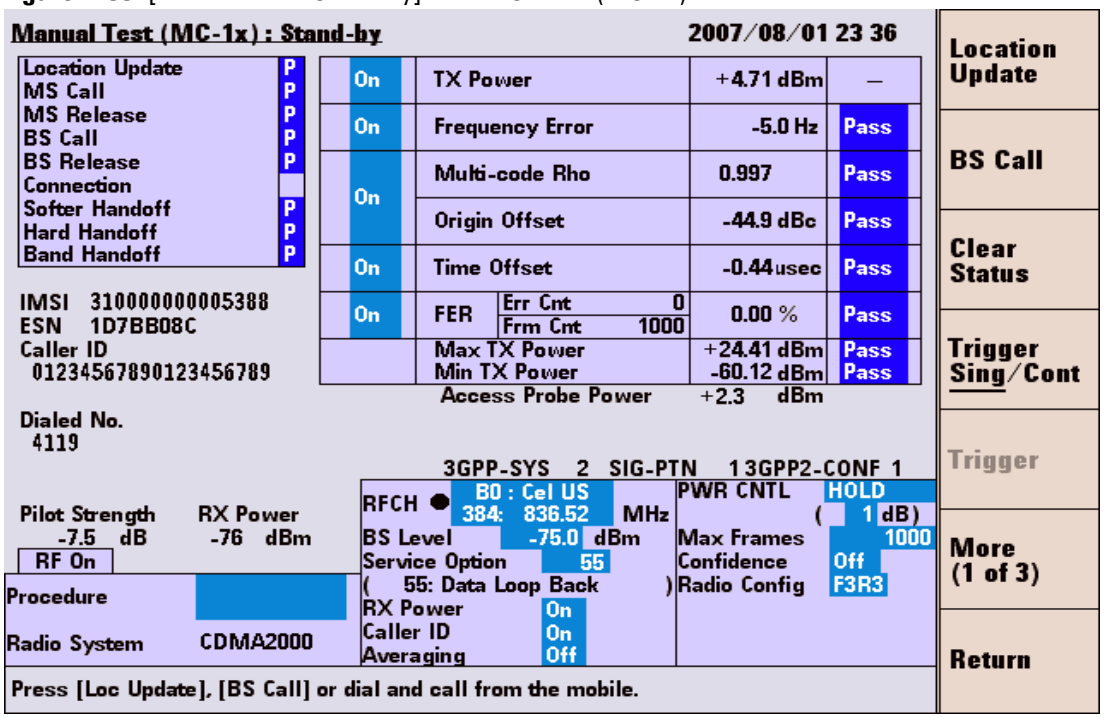


- Press the **Return** softkey to return to the previous screen.

18 Release the call with the following operation.

- **BS release**: Press the **Release** softkey.
- **MS release**: Press the **On Hook** button on the mobile phone.

Figure 4-33 [Manual Test: Stand-by] Result Screen (MC-1x)



After the release process is completed, the screen will return to the [Stand-by] screen.

Handoff

Softer Handoff

1 Follow the process of step 1 to step 13 of Testing a Dual Band Mobile Phone by Manual Test (MC-1x Mode) and set the mobile phone to call connection status.

2 Press the **More (1 of 2)** and **Softer Handoff** softkeys to start Softer handoff. The **Softer Handoff** step is highlighted. When the handoff is completed, **P** is shown at the **Softer Handoff** step.

3 Release the call with the following operation.

- **BS release**: Press the **Release** softkey.
- **MS release**: Press the **On Hook** button on the mobile phone.

After the release process is completed, the screen is returned to the [Stand-by] screen.

Hard Handoff

1 Follow the process of step 1 to step 13 of Testing a Dual Band Mobile Phone by Manual Test (MC-1x Mode) and set the mobile phone to call connection status.

2 Change the channel with the following operation.

- Move the cursor to the **RFCH** input field and press the CURSOR CONTROL knob.
- Rotate the CURSOR CONTROL knob to select the channel for handoff and press the CURSOR CONTROL knob again. When the channel in the same band is selected, the **Hard Handoff** step is highlighted. When the channel in the different band is selected, **Band Handoff** step is highlighted and the channel is changed to the selected one.
- When the handoff is completed, **P** is shown at the **Hard Handoff** or **Band Handoff** step.

3 Release the call with the following operation.

- **BS release**: Press the **Release** softkey.
- **MS release**: Press the **On Hook** button on the mobile phone.

After the release process is completed, the screen is returned to the [Stand-by] screen.

Emergency Call

NOTE To test the emergency call function, place the mobile phone and the Tester where the radio signal (electromagnetic wave) from base station of a cell phone operator does not propagate, such as in a shield room, an anechoic chamber, and etc.

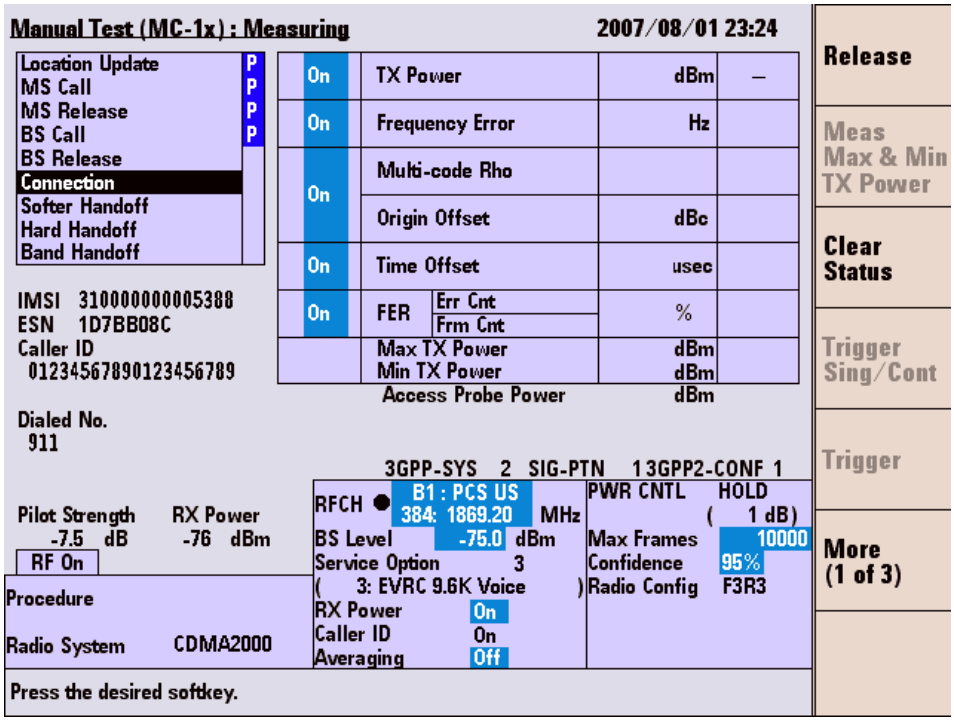
1 Follow the process of step 1 to step 11 of Testing a Dual Band Mobile Phone by Manual Test (MC-1x Mode) and set the mobile phone to Stand-by status.

2 Set the **Service Option** to 1, 3 or 17.

3 Dial an emergency call number and press an Off Hook button on the mobile phone to start MS Call.

4 After MS call starts, the screen as Figure 4-34 will be displayed. **Emergency Call** with dialed number is displayed at the **Dialed No.** field on the screen. **P** is shown at the **MS Call** step, and **Connection** is highlighted. (The **Emergency Call** message is displayed only when the mobile phone supports the protocol revision 7 and the **3GPP2 Config** is set to 2 or 4 for MC-1x Rel. .A.)

Figure 4-34 [Manual Test: Measuring] MS Call Emergency Call Screen (MC-1x)



Tests using 1xEV-DO Mode(Option C02)

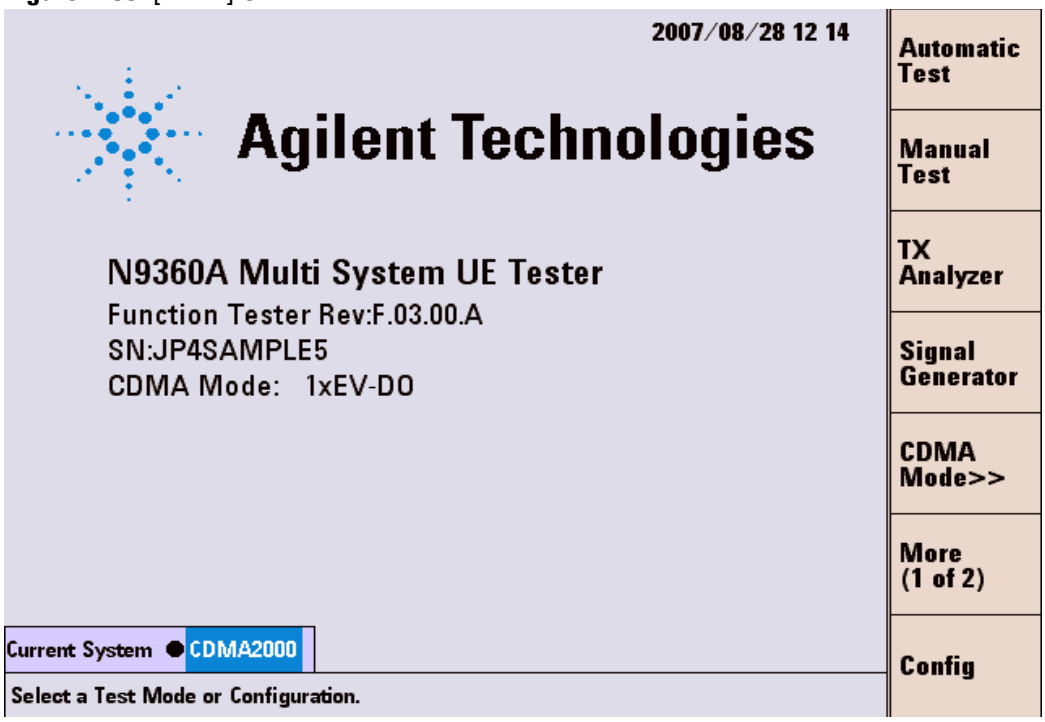
Testing a Dual Band Mobile Phone by Automatic Test (1xEV-DO Mode)

This section describes the operation method of the Tester and a dual band (B1:PCS US and B0:Cel US) mobile phone under the test by Automatic Test 1xEV-DO mode. The handoff from the B1:PCS US and B0:Cel US is performed during the test. Set the mobile phone to 1xEV-DO Only mode before measurement.

1 Turn on the Tester and select the cdma2000 system on the [Top Menu] screen. Refer to Selection of System on page 4-14.

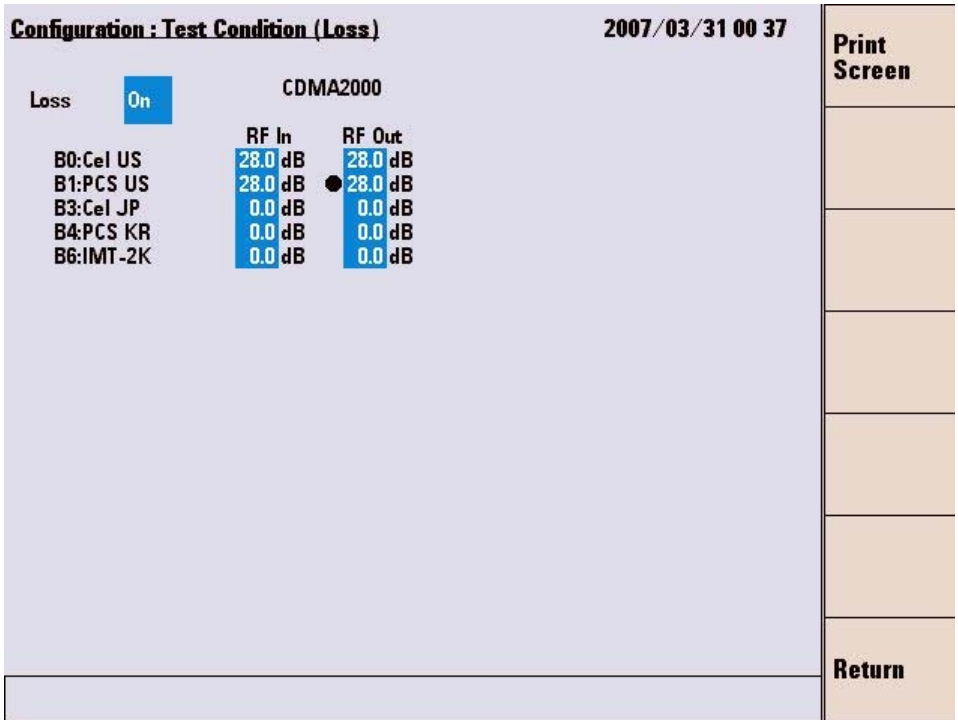
2 The [Initial] screen as Figure 4-35 is displayed after completion of initialization and self-test routine of the Tester.

Figure 4-35 [Initial] Screen



3 Set the path loss value. Press the **Config**, **Test Condition** and the **Loss** softkeys from the [Initial] screen to display the [Configuration: Test Condition (Loss)] screen specifying the **Loss** value. Refer to Entering Loss on the Configuration: Test Condition (Loss) Screen on page 4-22.

Figure 4-36 [Configuration: Test Condition (Loss)] Screen



4 Press the **Return** softkey twice and then the **Test Sequence** softkey to display the [Configuration: Test Sequence] screen for required setting in Automatic Test.

Figure 4-37 [Configuration: Test Sequence1] Screen

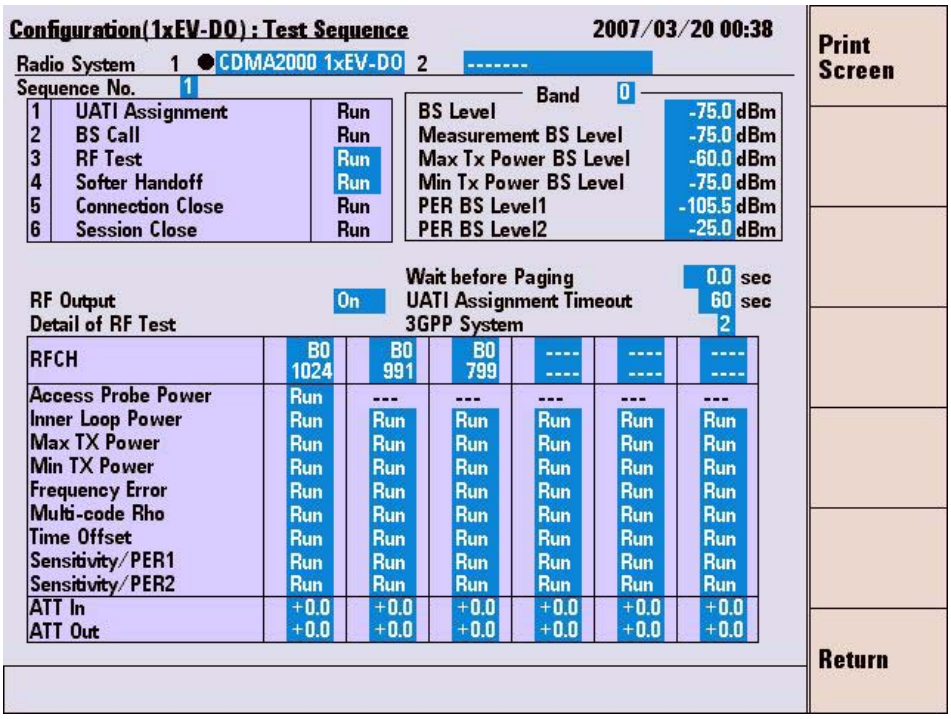
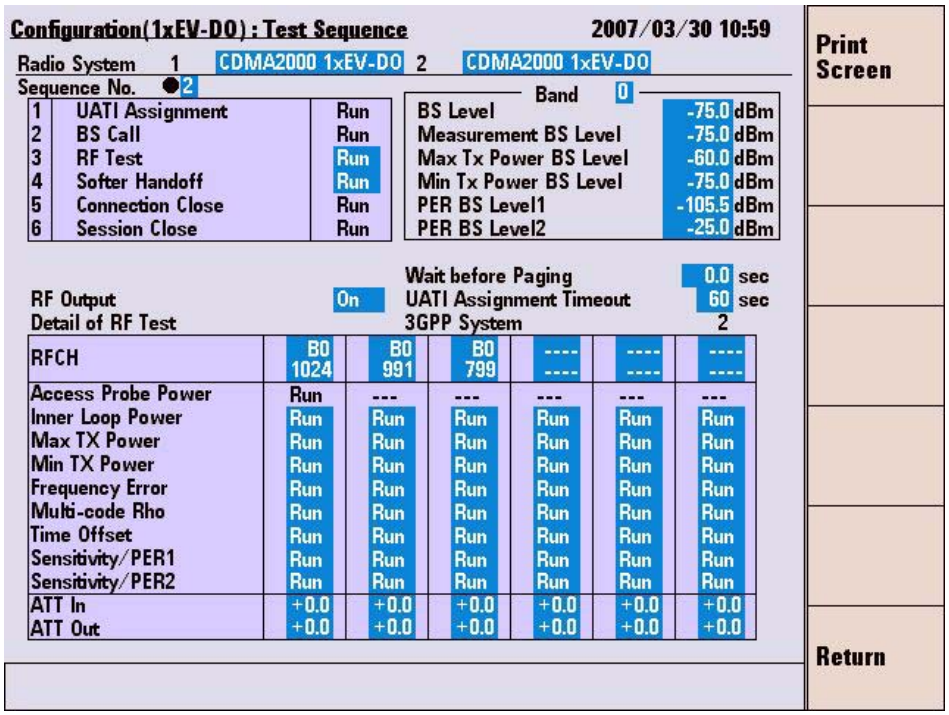


Figure 4-38 [Configuration: Test Sequence 2] Screen



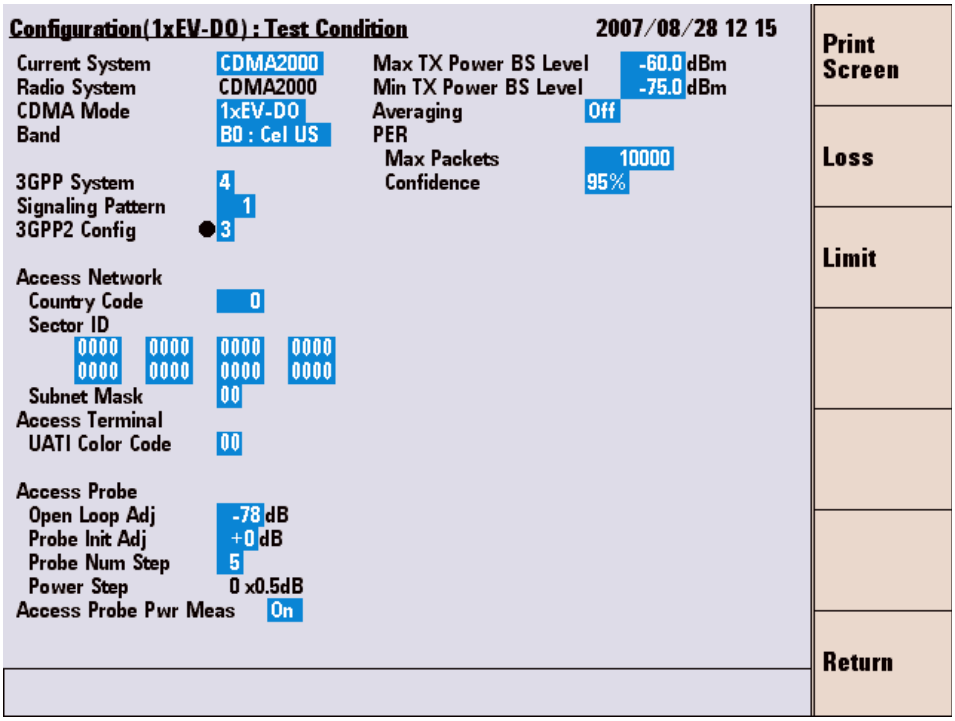
5 Set `CDMA2000 1xEV-DO` in **Radio System 1** and **2**, respectively, and set other fields as shown in Figure 4-37 and Figure 4-38.

6 Set `Run` at test item field which you want to execute in the test flow.

7 Set `Run` at measurement item cell which you want to measure in the measurement item table.

8 Press the **Return** softkey and then the **Test Condition** softkey to display the [Configuration: Test Condition] Screen as Figure 4-39 to set the test condition.

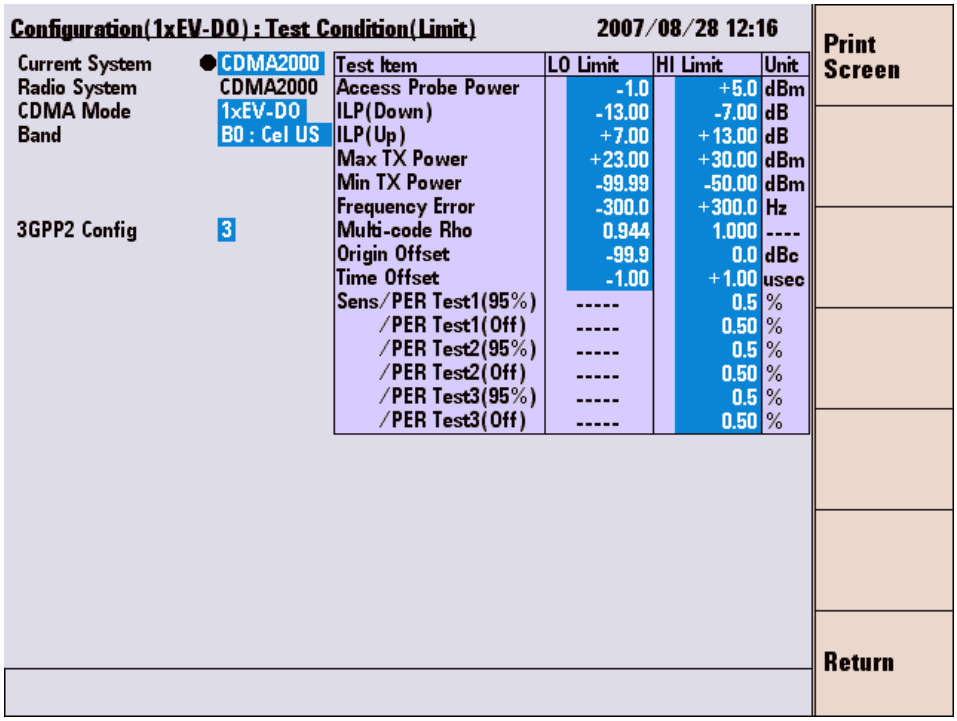
Figure 4-39 [Configuration: Test Condition] Screen (1xEV-DO)



9 Set the fields of the test parameters as shown in the left and upper right side of Figure 4-39 with the CURSOR CONTROL knob.

10 Press the **Limit** softkey to display the [Configuration: Test Condition (Limit)] Screen (1xEV-DO) as Figure 4-40.

Figure 4-40 [Configuration: Test Condition (Limit)] Screen (1xEV-DO)

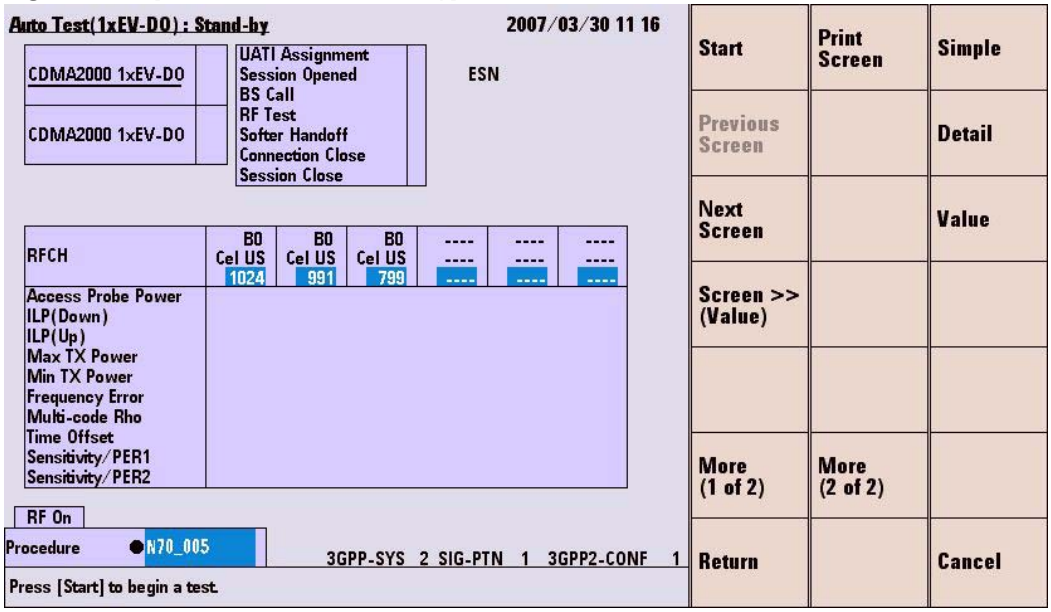


11 Set appropriate test limits in the cells of the test item table in the upper right side of Figure 4-40.

12 Repeat step 8 to step 11 to set the test condition for Cel US after replacing **B1:PCS US** with **B0:Cel US** in **Band** field.

13 Press the **Return** softkey three times and then the **Automatic Test** softkey to start Automatic Test. The [Automatic Test: Stand-by] screen as Figure 4-41 is displayed. Press the **Screen>>** softkey to select the display mode. Select **Simple**, **Detail** or **Value** softkey. The following Figure 4-41 is a value screen which will show the measured value for each measurement item.

Figure 4-41 [Automatic Test: Stand-by] Value Screen



14 Press the **Start** softkey to start a test. A screen status changes from Stand-by to Measuring.

15 Turn the mobile phone on. Wait for the mobile phone to camp on, and **P** is shown at the **UATI Assignment** step.

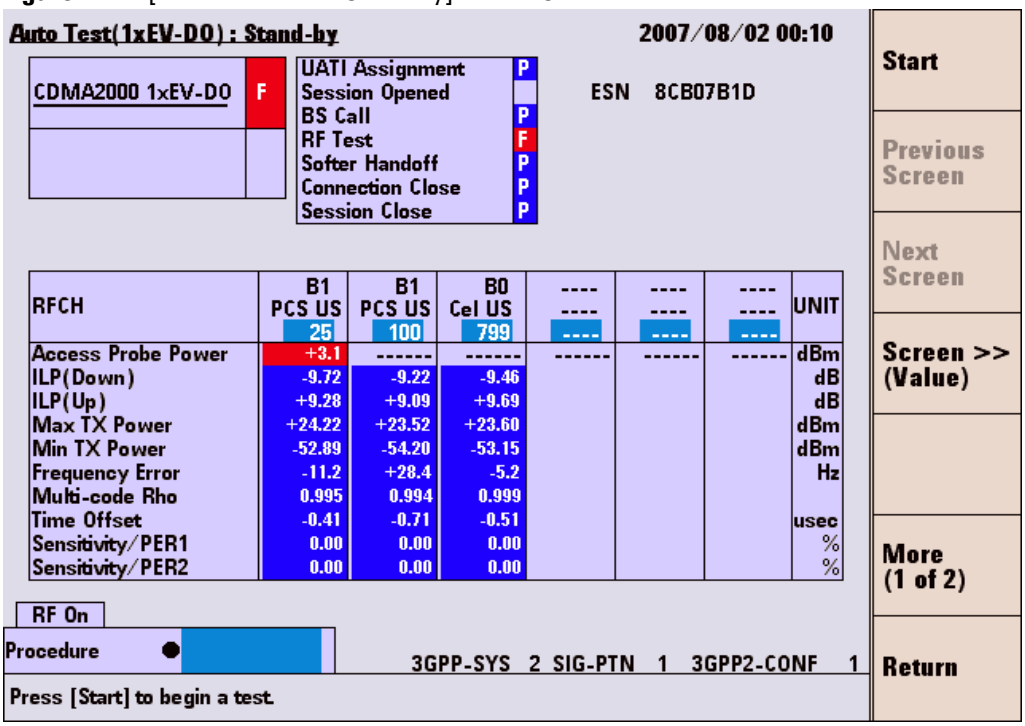
16 At the **BS Call** step, , the mobile phone automatically responds to the call from the Tester. When connected, **P** is shown at the **BS Call** step.

17 As each step is running in the test flow, its corresponding test item field in the table is highlighted. While the RF Test step is highlighted, each of the measurement items is measured. So, you can see how it is being done.

18 At the **Softer Handoff** step, handover from PCS US to Cel US. A screen status changes to Sequence 2.

19 After the measurement is completed, a [Stand-by] value screen is displayed to show the test results.

Figure 4-42 [Automatic Test: Stand-by] Result Screen



20 If a printer is available, print the test results.

Press the **More (1 of 2)** softkey, and then the **Print Screen** softkey to print a screen hardcopy.

21 Press the **More (2 of 2)** softkey to return to the previous softkey menu.

22 If you want to repeat the same test again, press the **Start** softkey.

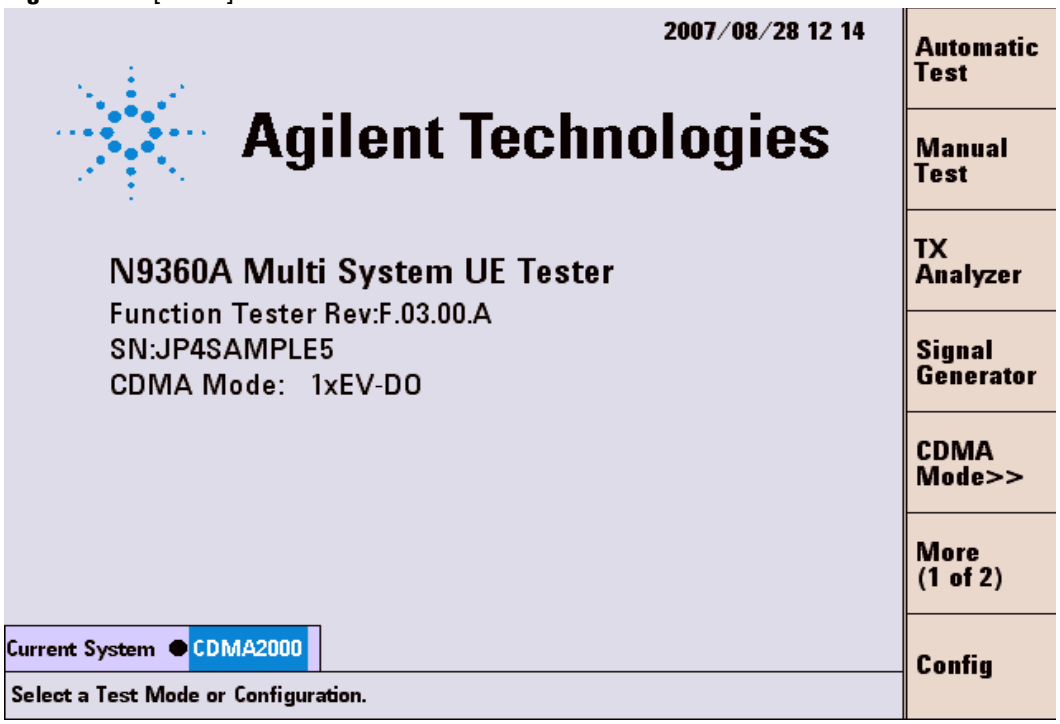
Testing a Dual Band Mobile Phone by Manual Test (1xEV-DO Mode)

This section describes the operation method of the Tester and a dual band (PCS US and Cel US) mobile phone under the test by the Manual Test **1xEV-DO** mode. Set the mobile phone to 1xEV-DO Only mode before measurement.

1 Turn on the Tester and select the cdma2000 system on the [Top Menu] screen. Refer to Selection of System on page 4-14 for selecting a system.

2 The [Initial] screen as Figure 4-43 is displayed after completion of initialization and self-test routine of the Tester. When CDMA Mode is not set to 1xEV-DO, switch to 1xEV-DO mode by pressing **CDMA Mode >>** and then **1xEV-DO** softkeys.

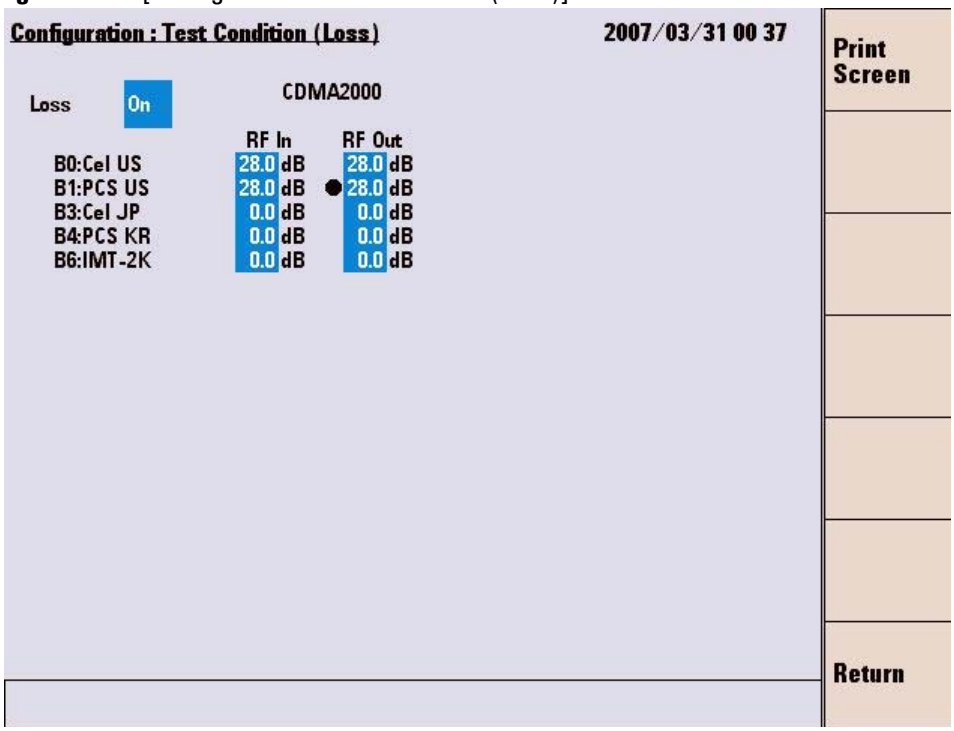
Figure 4-43 [Initial] Screen



3 Set the path loss value. Press the **Config**, **Test Condition** and the **Loss** softkeys from the [Initial] screen to display the

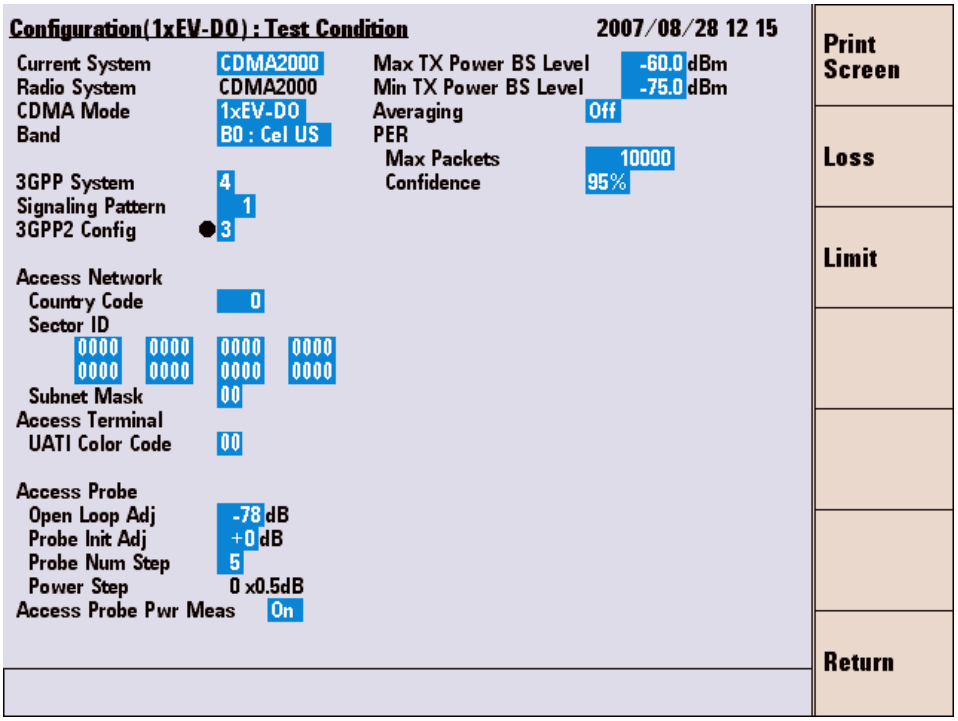
[Configuration: Test Condition (Loss)] screen specifying the **Loss** value. Refer to Entering Loss on the Configuration: Test Condition (Loss) Screen on page 4-22.

Figure 4-44 [Configuration: Test Condition (Loss)] Screen



4 Press the **Return** softkey to display the [Configuration: Test Condition] screen for required setting in Manual Test 1xEV-DO mode.

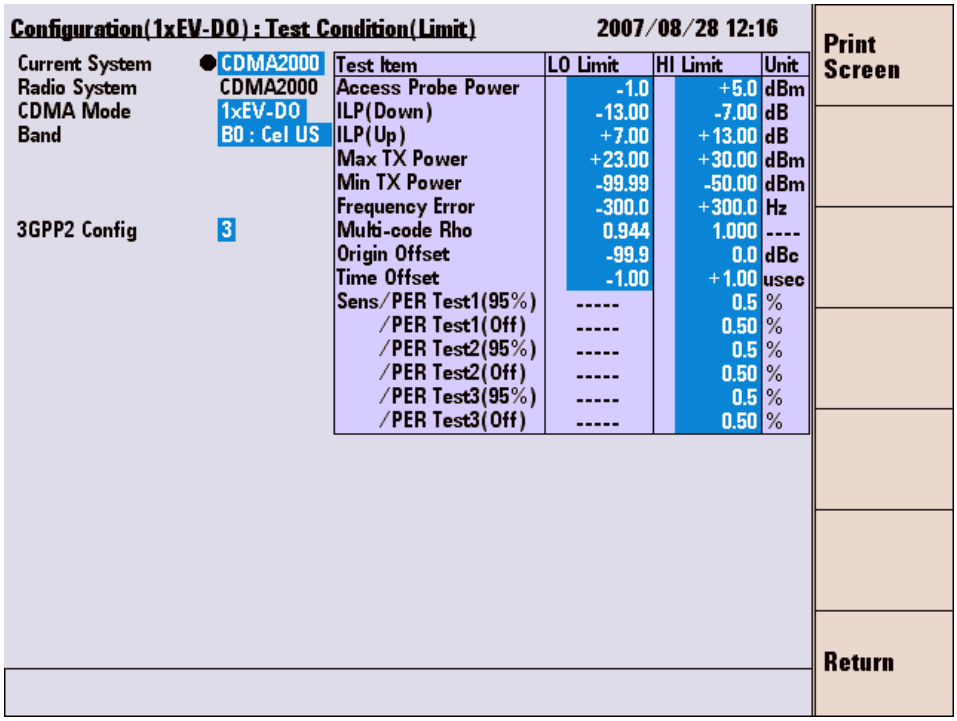
Figure 4-45 [Configuration: Test Condition] Screen



5 Select **1xEV-DO** at the **CDMA Mode** field by using the CURSOR CONTROL knob. This value might be set to **1xEV-DO**, if the operation of step 2 is preceded.

6 Press the **Limit** softkey to display the [Configuration: Test Condition (Limit)] Screen (1xEV-DO) as Figure 2.46.

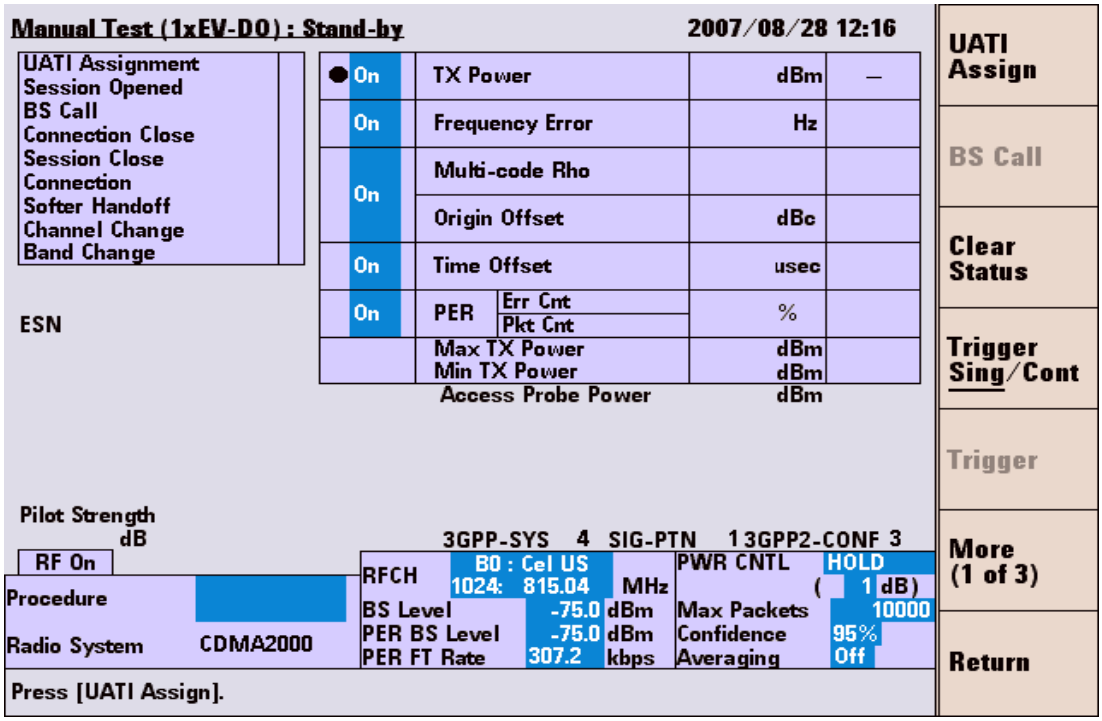
Figure 4-46 [Configuration: Test Condition (Limit)] Screen (1xEV-DO)



7 Set appropriate test limits in the cells of the test item table in the upper right side of Figure 4-46.

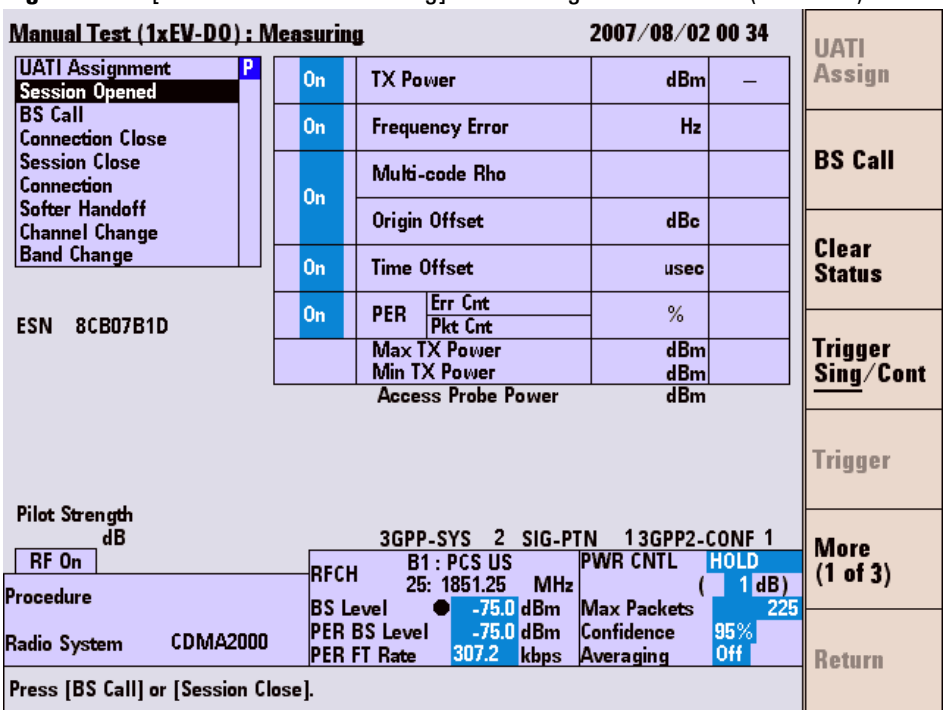
8 Press the **Return** softkey three times and then the **Manual Test** softkey to start Manual Test. The [Manual Test: Stand-by] Screen (1xEV-DO) as Figure 4-47 is displayed. Set the RFCH to the control channel of the mobile phone.

Figure 4-47 [Manual Test: Stand-by] Screen (1xEV-DO)



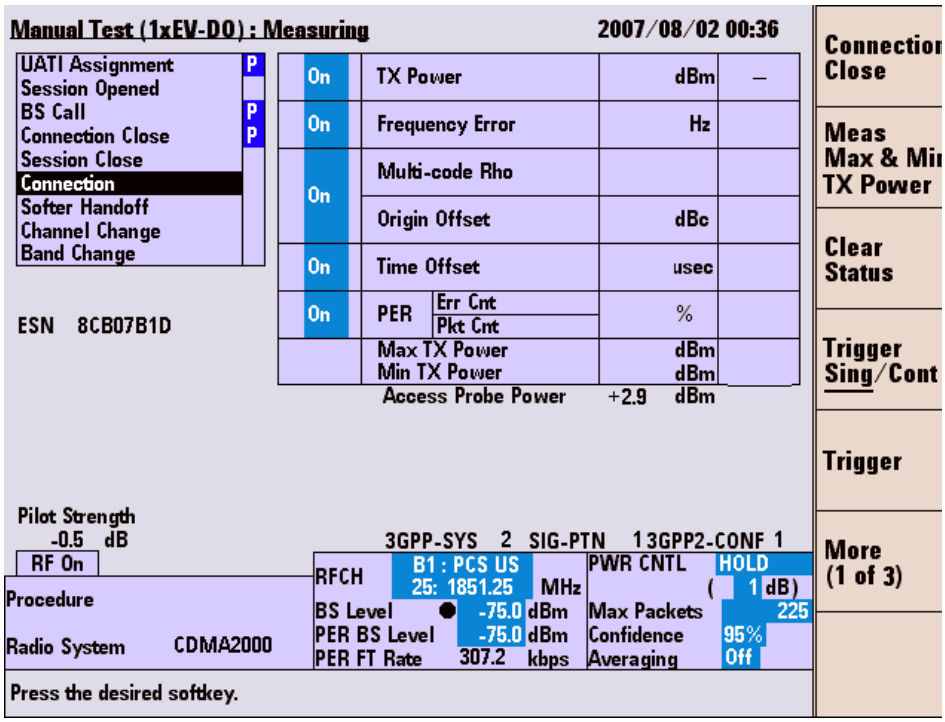
9 Press the UATI Assign softkey, and turn the mobile phone on. Wait for the mobile phone to camp on. **P** is shown at the **UATI Assignment** step, and **Session Opened** is highlighted.

Figure 4-48 [Manual Test: Measuring] UATI Assignment Screen (1xEV-DO)



10 Press the **BS Call** softkey. The mobile phone replies automatically. After BS call starts, the screen as shown in Figure 4-49 is displayed. **P** is shown at the **BS Call** step as the test result of BS Call, and **Connection** is highlighted.

Figure 4-49 [Manual Test: Measuring] BS Screen (1xEV-DO)

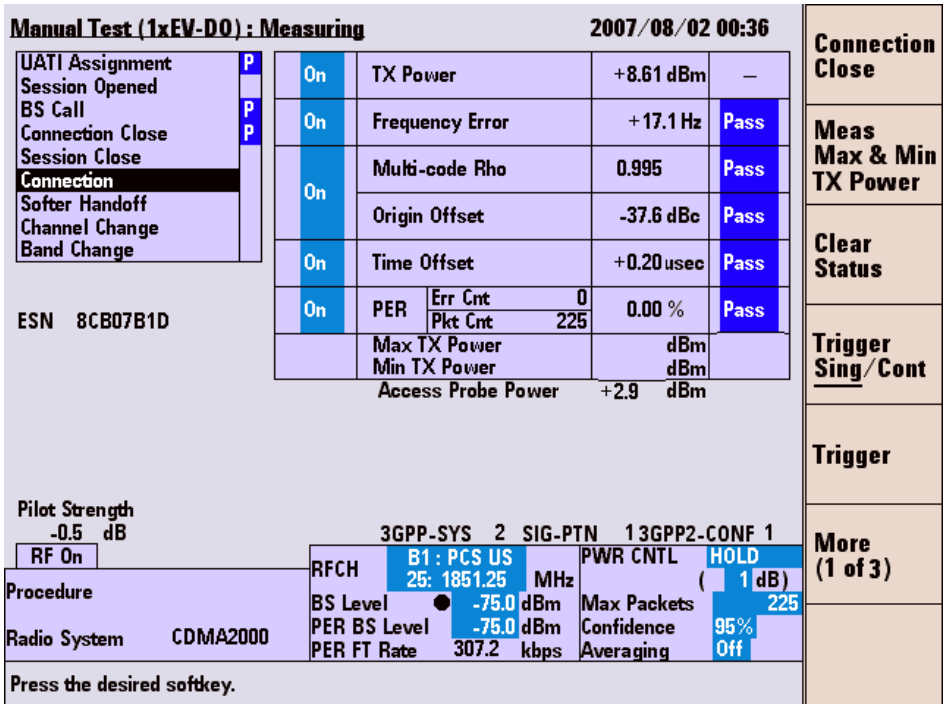


11 When starting the RF Test, refer the following descriptions.

- If the trigger mode is set to `Cont` (continuous), continuous measurement starts immediately.
- If the trigger mode is set to `Sing` (single), press **Trigger** softkey to start single measurement.

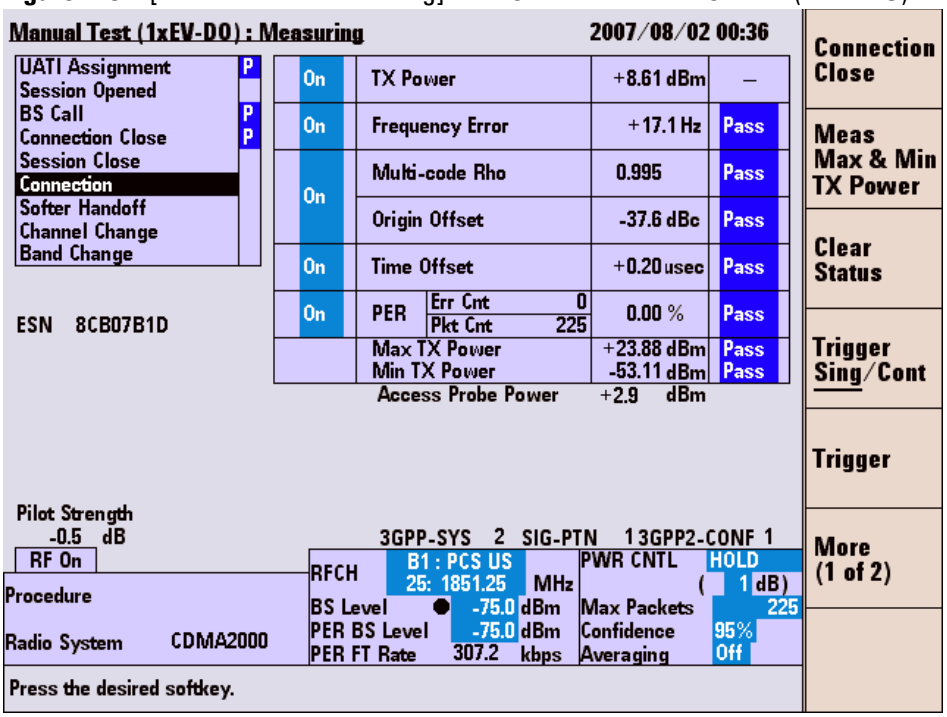
12 After the measurement is completed, a [Measuring] summary screen containing test results is displayed.

Figure 4-50 [Manual Test: Measuring] Result Screen (1xEV-DO)



13 Press the **Meas Max & Min TX Power** softkey to measure Max & Min TX Power.

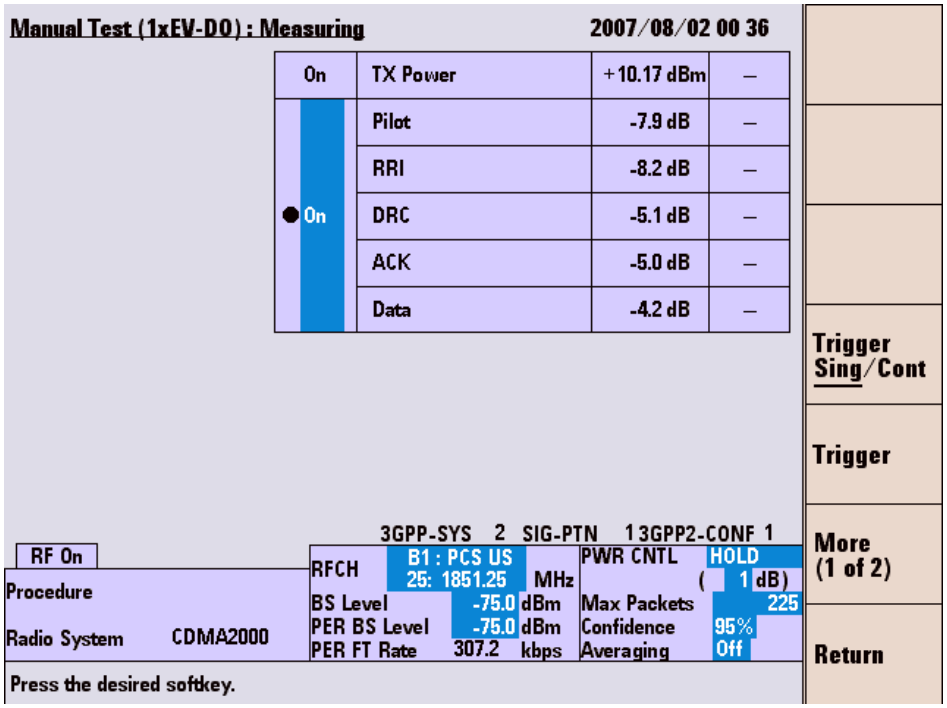
Figure 4-51 [Manual Test: Measuring] Max & Min TX Power Screen (1xEV-DO)



14 When measuring Code Domain Power, press the **More (1 of 3)** and **Code Power** softkeys to display the Code Domain Power measurement screen. Perform Code Domain Power measurement in accordance with the trigger mode setting described below.

- If the trigger mode is set to `Cont` (continuous), continuous measurement starts immediately.
- If the trigger mode is set to `Sing` (single), press **Trigger** softkey to start single measurement.

Figure 4-52 [Manual Test] Code Domain Power Result Screen (1xEV-DO)

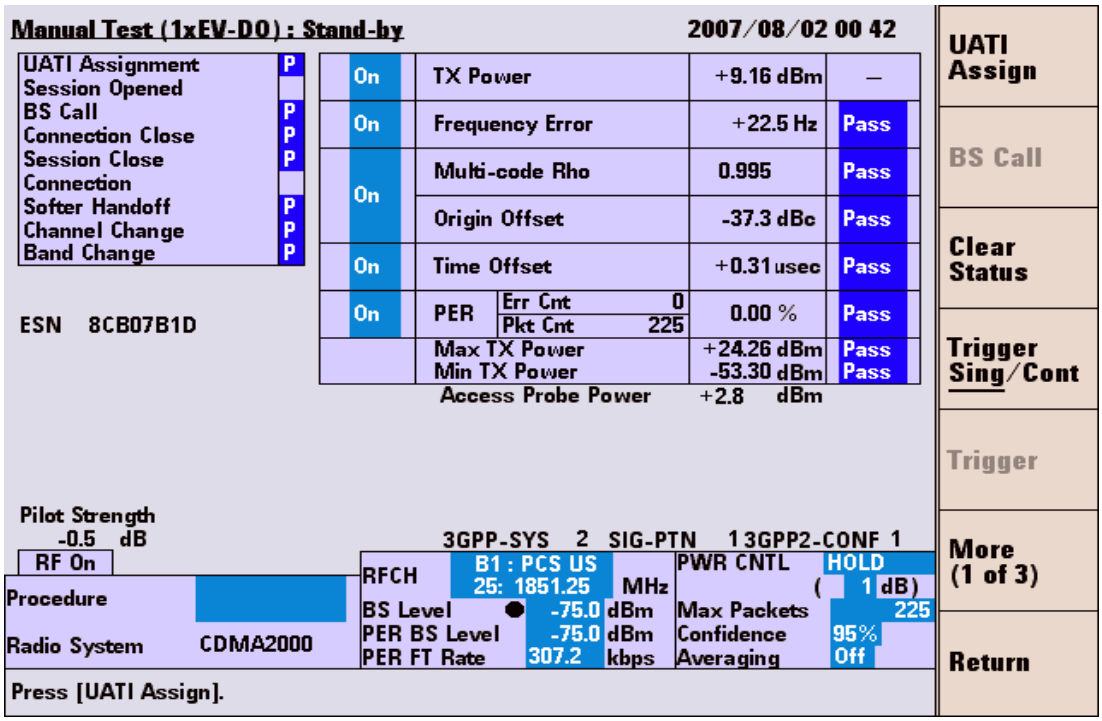


- Press the **Return** softkey to return to the previous screen.

15 Release the call with the following operation.

- Press the **Connection Close**, **More (1 of 3)** and **Session Close** softkeys. After the release process is completed, the screen is returned to the [Stand-by] screen.

Figure 4-53 [Manual Test: Stand-by] Result Screen (1xEV-DO)



Handoff

Softer Handoff

1 Follow the process of step 1 to step 10 of Testing a Dual Band Mobile Phone by Manual Test (1xEV-DO Mode) and set the mobile phone to call connection status.

2 Press **More (1 of 3)** and **Softer Handoff** softkeys to start Softer handoff. The **Softer Handoff** step is highlighted. When the handoff is completed, **P** is shown at the **Softer Handoff** step.

3 Release the call with the following operation.

- Press the **Connection Close**, **More (1 of 3)** and **Session Close** softkeys.

Hard Handoff

1 Follow the process of step 1 to step 10 of Testing a Dual Band Mobile Phone by Manual Test (1xEV-DO Mode) and set the mobile phone to call connection status.

2 Change the channel with the following operation.

- Move the cursor to **RFCH** input field and press the CURSOR CONTROL knob.
- Rotate the CURSOR CONTROL knob to select the channel for handoff and press the CURSOR CONTROL knob again. When the channel in the same band is selected, the **Channel Change** step is highlighted. When the channel in the different band is selected, **Band Change** step is highlighted and the channel is changed to the selected one.
- When handoff is completed, **P** is shown at the **Channel Change** or **Band Change** step.

3 Release the call with the following operation.

- **BS release**: Press the **Connection Close**, **More (1 of 3)** and **Session Close** softkeys.

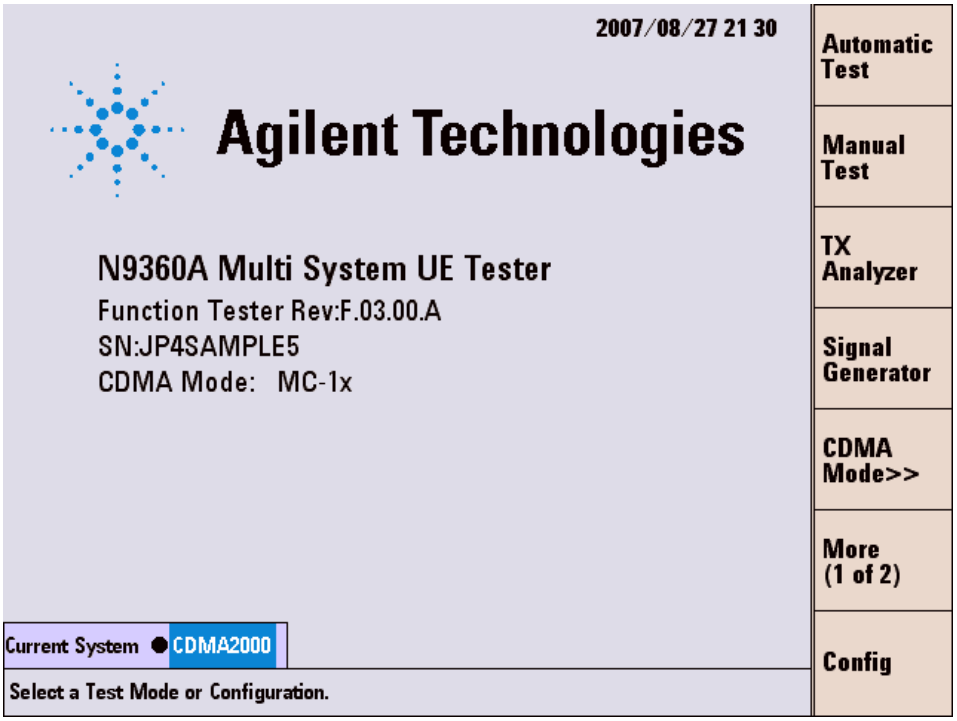
Testing a Mobile Phone by TX Analyzer

This section describes the operation method of the Tester for a test by the TX Analyzer.

1 Turn on the Tester and select the cdma2000 system on the [Top Menu] screen. Refer to Selection of System on page 4-14 for selecting a system.

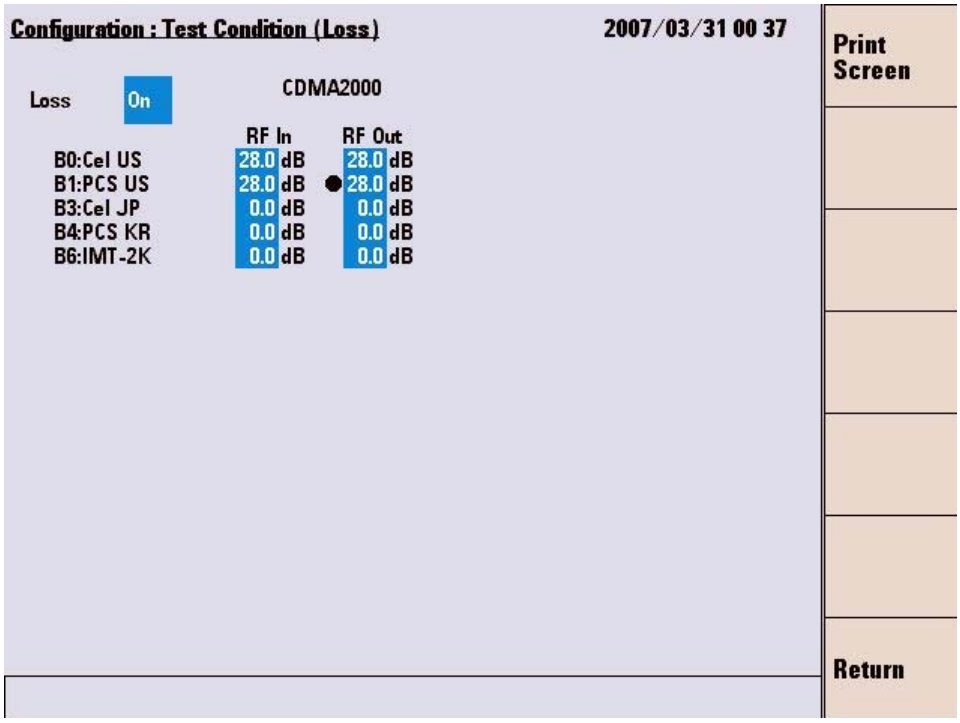
2 The [Initial] screen as Figure 4-54 is displayed after completion of initialization and self-test routine of the Tester.

Figure 4-54 [Initial] Screen



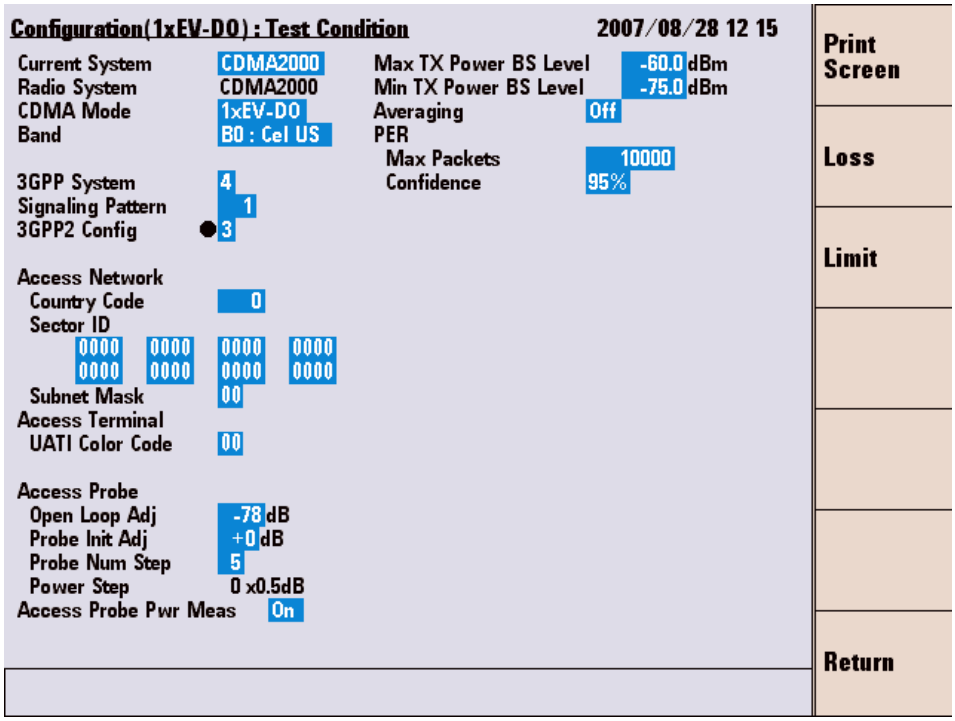
3 Set the path loss values. Press the **Config**, **Test Condition** and then the **Loss** softkeys from the [Initial] screen to display the [Configuration: Test Condition (Loss)] screen specifying the **Loss** value. Refer to Entering Loss on the Configuration: Test Condition (Loss) Screen on page 4-22.

Figure 4-55 [Configuration: Test Condition (Loss)] Screen



4 Press the **Return** softkey to display the [Configuration: Test Condition] screen to set the test condition.

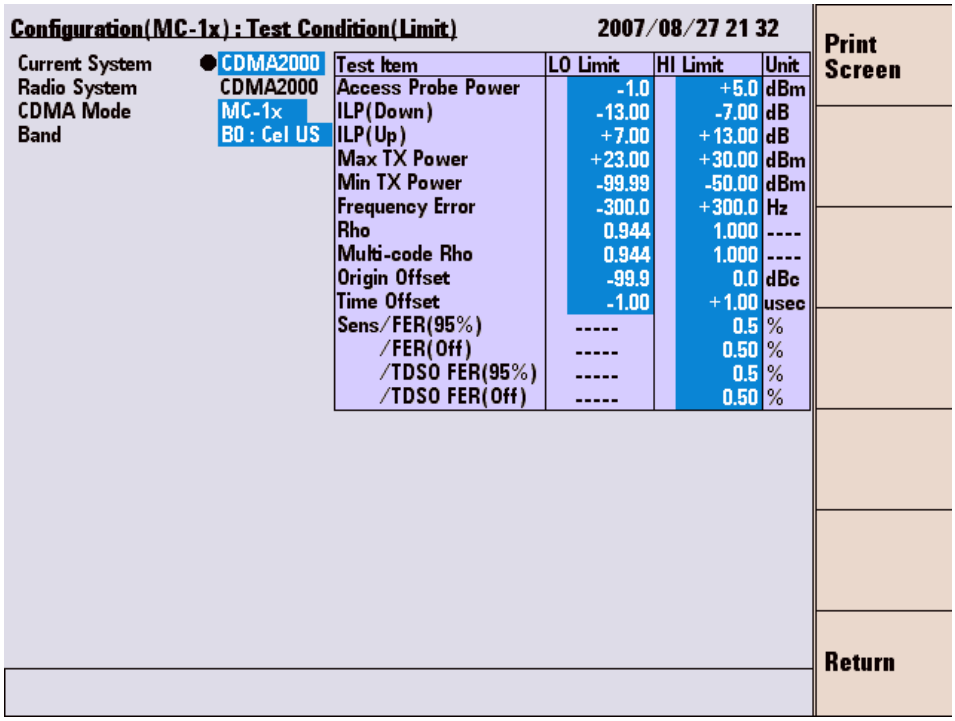
Figure 4-56 [Configuration: Test Condition] Screen



5 Set the input fields of the test parameter as shown in Figure 4-56.

6 Press the **Limit** softkey to display the [Configuration: Test Condition (Limit)] screen as Figure 4-57.

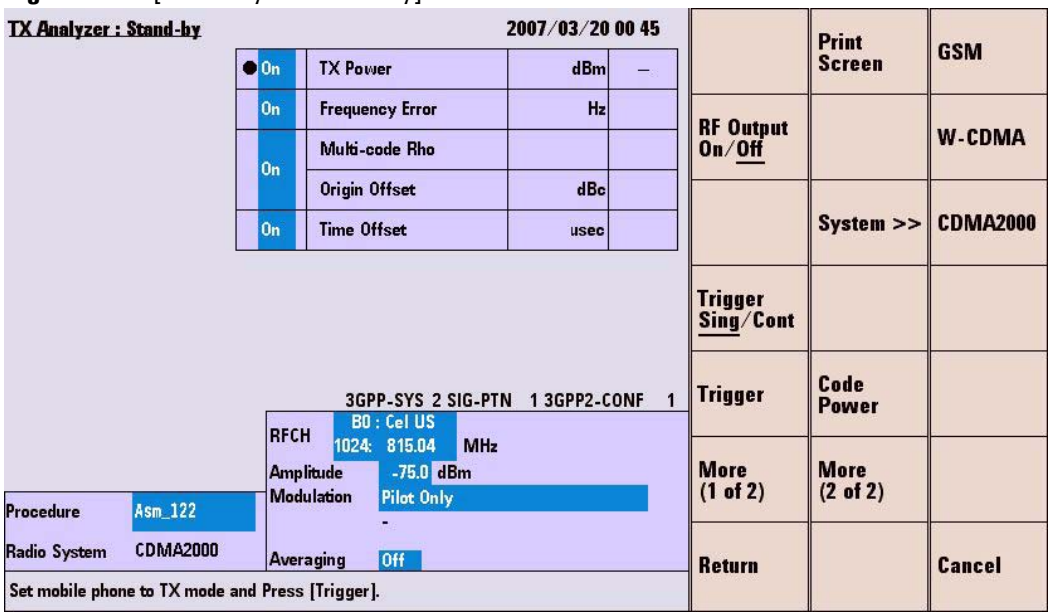
Figure 4-57 [Configuration: Test Condition (Limit)] Screen



7 Enter appropriate test limits in the cells of the test item table on the [Configuration: Test Condition] screen.

8 Press the **Return** softkey three times and the **TX Analyzer** softkey. The [TX Analyzer: Stand-by] screen as Figure 4-58 is displayed.

Figure 4-58 [TX Analyzer: Stand-by] Screen



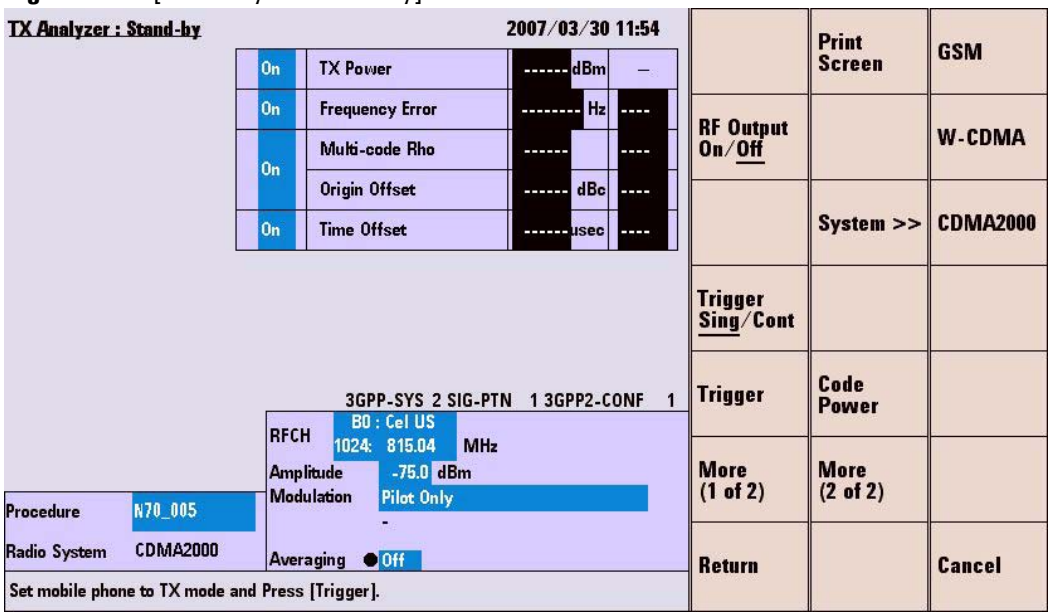
9 Set the mobile phone to transmit the bursted RF signal.

10 Start a test with the following operation.

- When the trigger mode is `Sing`, single measurement starts after the **Trigger** softkey is pressed.
- To change the trigger mode to `Cont` in order to start continuous measurement, press the **Trigger Sing/Cont** softkey. When the trigger mode is `Cont`, continuous measurement starts as soon as the [TX Analyzer: Stand-by] screen is displayed.

11 During continuous measurement, press the **Trigger Sing/Cont** softkey to terminate continuous measurement. A screen showing measurement results is displayed.

Figure 4-59 [TX Analyzer: Stand-by] Result Screen



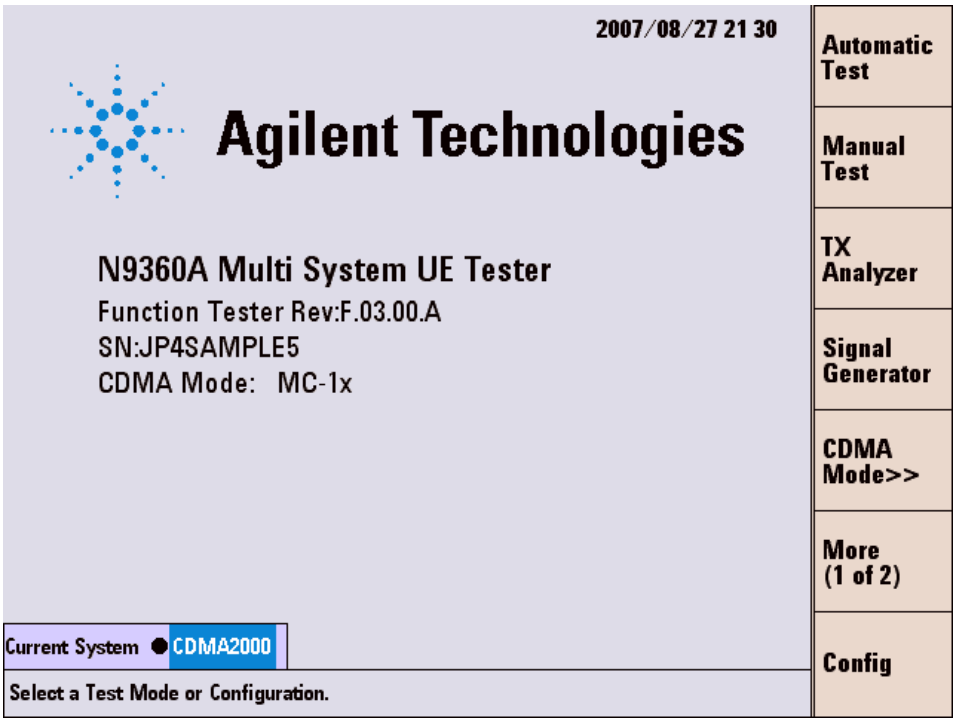
Testing a Mobile Phone by Signal Generator

This section describes the operation method of the Tester for a test by the Signal Generator.

1 Turn on the Tester and select the cdma2000 system on the [Top Menu] screen. Refer to Selection of System on page 4-14 for selecting a system.

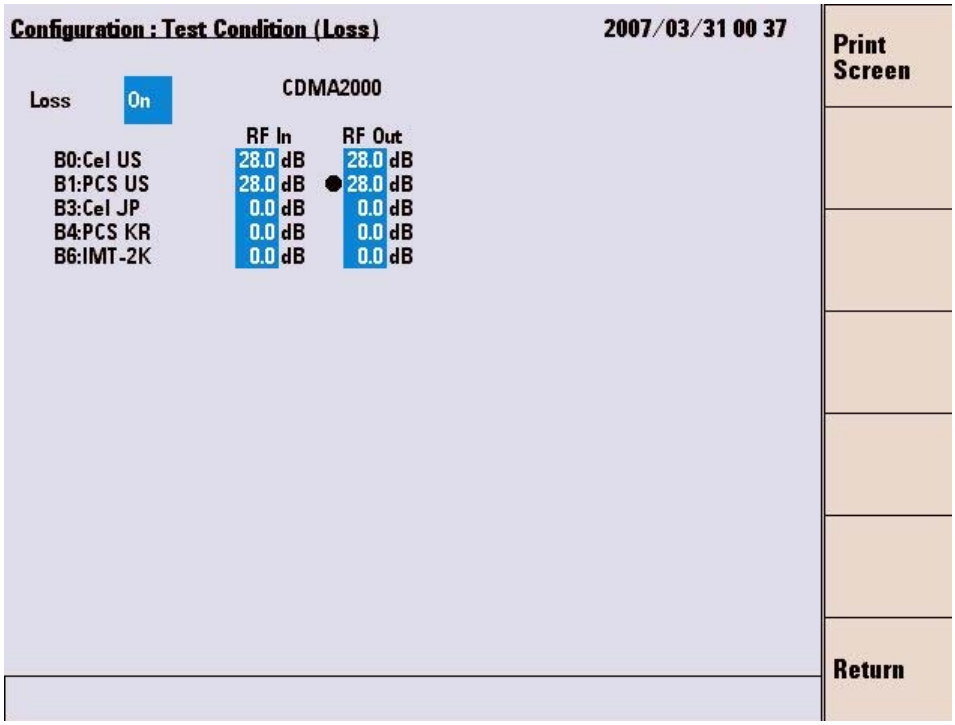
2 The [Initial] screen as Figure 4-60 is displayed after completion of initialization and self-test routine of the Tester.

Figure 4-60 [Initial] Screen



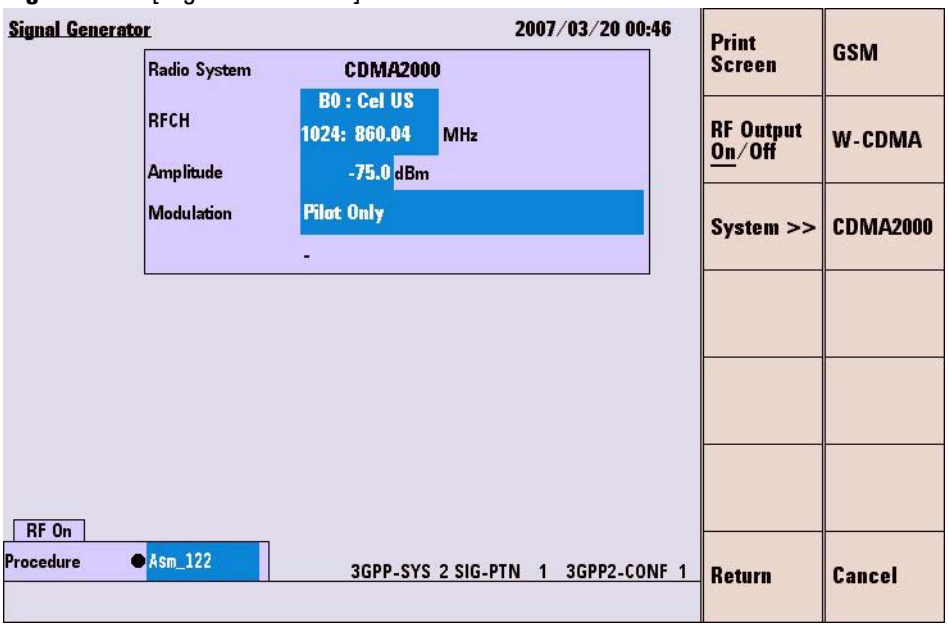
3 Set the path loss values. Press the **Config**, **Test Condition** and then the **Loss** softkeys from the [Initial] screen to display the [Configuration: Test Condition (Loss)] screen specifying the **Loss** value. Refer to Entering Loss on the Configuration: Test Condition (Loss) Screen on page 4-22.

Figure 4-61 [Configuration: Test Condition (Loss)] Screen



4 Press the **Return** three times and then press the **Signal Generator** softkey on the [Initial] screen. The [Signal Generator] screen as Figure 4-62 is displayed.

Figure 4-62 [Signal Generator] Screen



5 Set the input fields.

6 Press the **RF Output On/Off** softkey to change **On/Off** state from `Off` to `On` for transmitting RF signal to the mobile phone.

7 Press the **RF Output On/Off** softkey again to change **On/Off** state from `On` to `Off` for termination of the test.

Ending a Test

CAUTION

In the Tester, the HDD is used for storage.

Do not turn off the Line switch on the rear panel of the Tester while the LINE LED on the front panel of the Tester is lit in green. Otherwise, Tester failure may occur.

Disconnecting the Mobile Phone

Disconnect the mobile phone from the connection cable or the antenna coupler.

Turning off the Tester

Turn off the Tester with the following procedure.

1 Press the LINE switch on the front panel of the Tester for more than one second.

2 The display blacks out, and the LINE LED on the front panel is lit in orange.

3 The power is turned off except the reference oscillator in the Tester.

4 Turn off the Line switch on the rear panel of the Tester to turn off the reference oscillator.

5 All power including the reference oscillator is turned off and the LINE LED goes off.

5 Description of Screens

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Top Menu Screen 5-3
Configuration Screen 5-6
Firmware Update Screen 5-12
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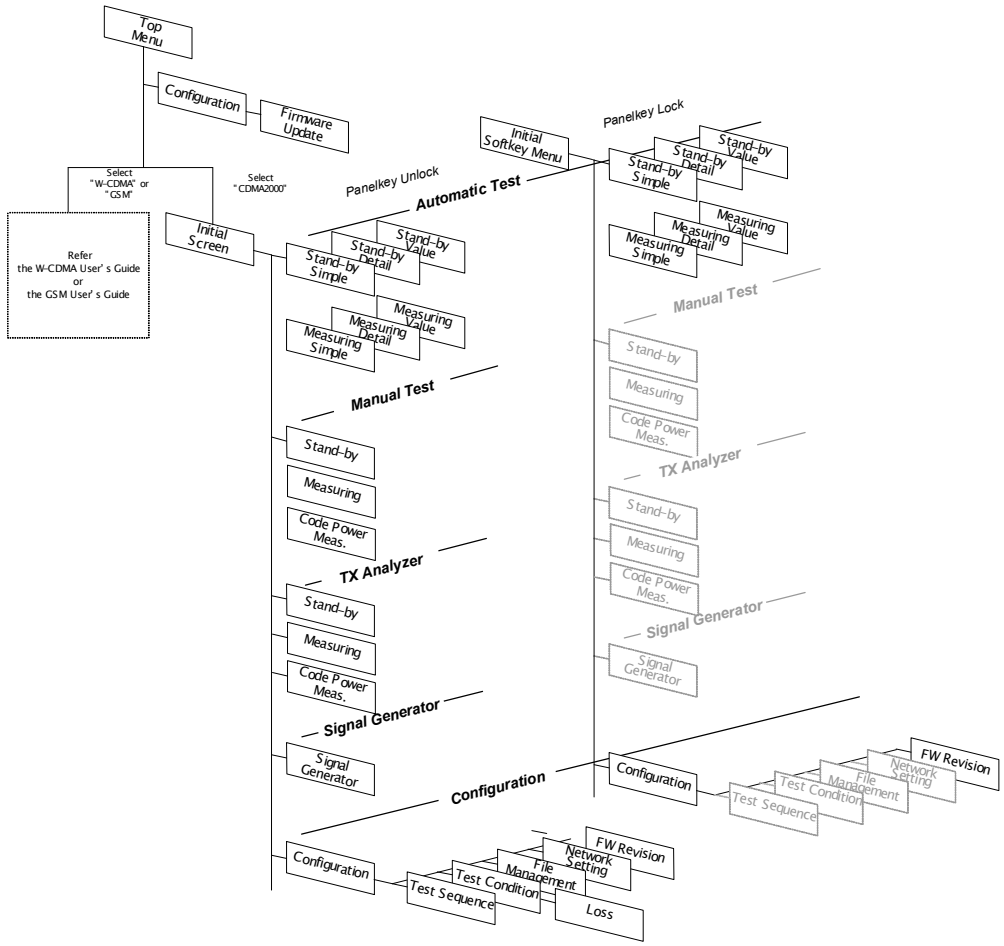
This chapter describes how to use the screens as well as the behavior of each screen and the softkeys available on each screen.

Screen Structure

The following Figure 5-1 shows the screen structure that consists of screens for each mode. Each box represents a screen in a different mode or test conditions.

Figure 5-1 Screen Structure



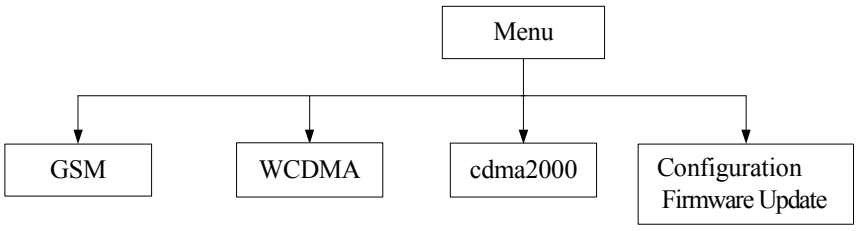
Top Menu Screen

After power on, the [Top Menu] screen as Figure 5-2 is displayed.

This screen is used to select a system or to display the [Configuration] screen.

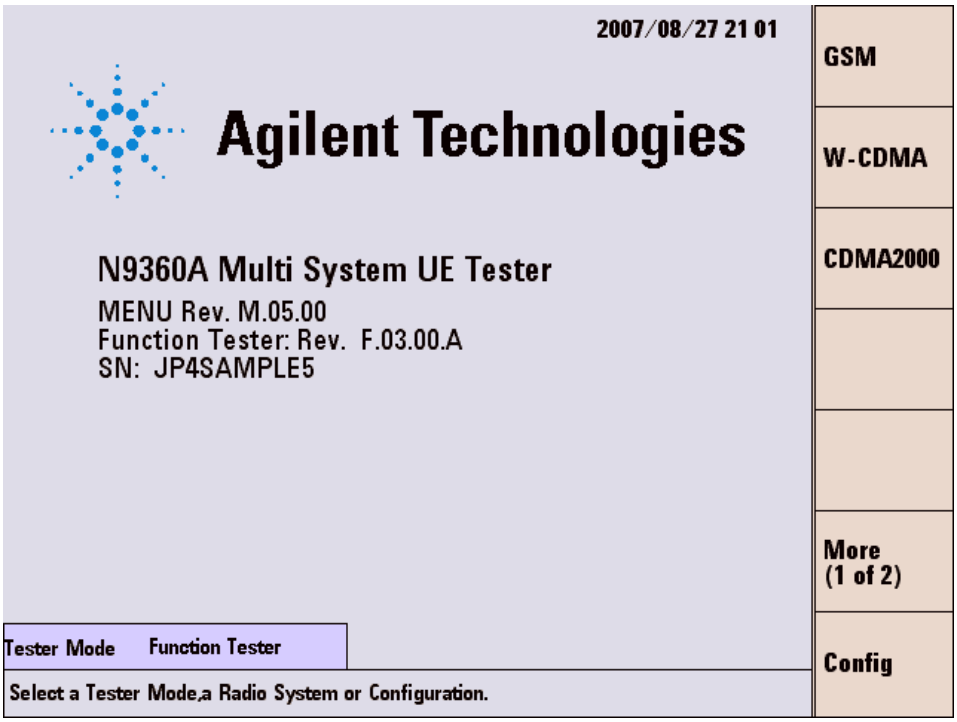
Options for the Tester system are GSM, W-CDMA, and/or cdma2000.

Figure 5-2 Top Menu Structure



NOTE This N9360A Multi UE Tester CDMA2000 USer Manual provides information for the cdma2000 system only. For the GSM system, refer to the N9360A Multi UE Tester GSM User Manual; for the W-CDMA system, refer to the N9360A Multi UE Tester W-CDMA User Manual.

Figure 5-3 [Top Menu] Screen



Softkey Menu Field

Softkey Menu 1

- **GSM**: Selects the GSM system. After the system is selected, the Tester is automatically rebooted, and then displays the [Initial] screen for GSM system. This softkey is activated when the GSM system is installed in the Tester.
- **WCDMA**: Selects the W-CDMA system. After the system is selected, the Tester is automatically rebooted, and then displays the [Initial] screen for W-CDMA system. This softkey is activated when the W-CDMA system is installed in the Tester.
- **CDMA2000**: Selects the cdma2000 system. When the system is selected, the Tester automatically restarts and the [Initial] screen for the cdma2000 system appears. This softkey is available only when the cdma2000 system is installed on the Tester.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Config**: Displays the [Configuration] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves an image file of the screen into a USB memory device depending on the setting of the **Printer** field on the [Configuration] screen.
- **Reboot**: Aborts the current system and returns the [Top Menu] screen after reboots the Tester.
- **More (2 of 2)**: Displays the Softkey Menu 1.

NOTE

When the Autoboot function is set to `FUNC GSM`, `FUNC WCDMA`, or `FUNC CDMA2000`, the Tester will automatically displays the [Initial] screen for the GSM, W-CDMA or cdma2000 system mode if no softkey is pressed within the specified time (10 to 60 seconds). When the Tester is shipped, the AutoBoot function is set to `None`.

Screen Field

This area displays the name, revision number, serial number, and other information of the firmware that is currently installed.

Message Field

The following message is displayed in the message field:

Select a Radio System or Configuration.

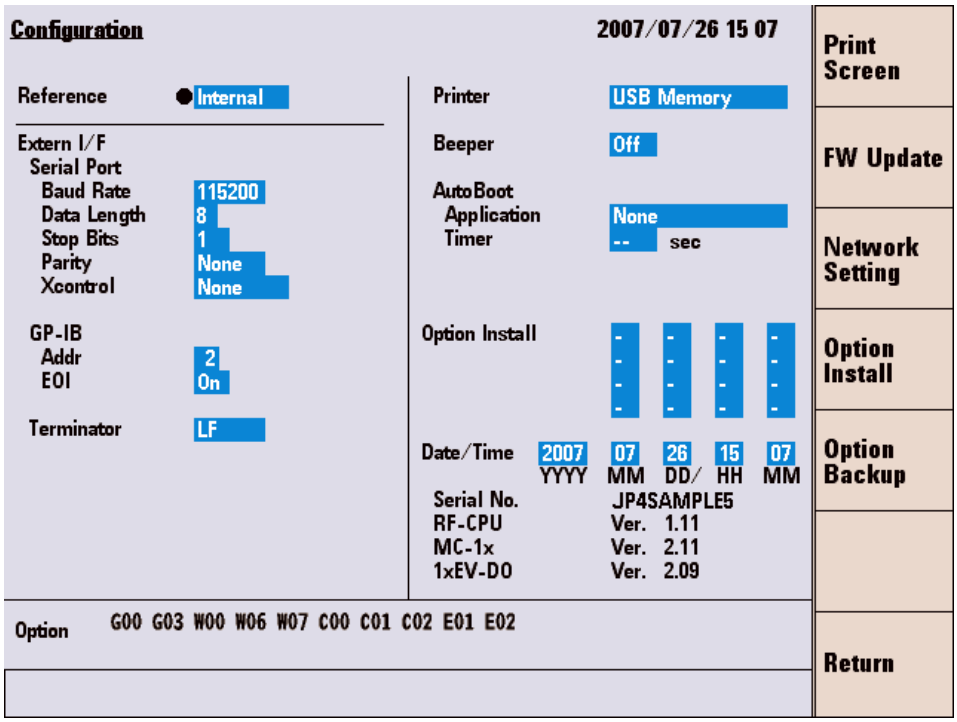
Configuration Screen

When the **Config** softkey is pressed on the [Top Menu] screen, the [Configuration] screen as Figure 5-4 is displayed. If the option E02 is not installed, the screen is as shown in Figure 5-5; if the option E01 is not installed, the screen is as shown in Figure 5-6.

The following various conditions are set on this screen.

- Signal decrease of internal/external reference signal
- Interface for external control
- Date and time
- Printer
- Beeper
- Automatic Boot

Figure 5-4 [Configuration] Screen



Softkey Menu Field

Softkey Menu

- **Print Screen**: Prints a hardcopy of the screen or saves it in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **FW Update**: Displays the [Firmware Update] screen.
- **Network Setting**: Displays the [Network Setting] screen.
- **Option Install**: Used to install option functions to display in E01 or E02.
- **Option Backup**: Backs up the installed option functions.
- **Return**: Returns to the [Top Menu] screen.

When the Option E02 is not installed in the Tester, the **GP-IB** field is displayed in gray (inactivated) as shown in Figure 5-5.

Figure 5-5 Part of [Configuration] screen (without Option E02)

When the Option E01 is not installed in the Tester, the **Serial Port GP-IB** field is displayed in gray (inactivated) as Figure 5-6.

Figure 5-6 Part of [Configuration] screen (without Option E01)

Screen Field

Set the input items required to use the Tester, referring to the description shown in Table 5-1.

Table 5-1 Input Items on the [Configuration] Screen

Input Field	Description
Reference	Selects the reference signal from **Internal** and **External**. • Internal: Use the internal 10 MHz reference signal. • External: Use the external 10 MHz reference signal. The 10 MHz reference signal must be supplied to the 10MHz Reference IN connector on the rear panel.
Serial Port	Sets the serial (RS-232C) port communication condition to use external control. This function is unavailable without E01/E02 option. • Baud Rate: Sets communication speed to `9600`, `19200`, `38400`, `57600` or `115200` bits per second. • Data Length: Sets data length to `7` or `8` bits. • Stop Bits: Sets stop bit length to `1`, `1.5` or `2` bits. • Parity: Sets parity check mode to `None`, `Odd` or `Even`. • Xcontrol: Sets flow control to `None` or `Xon/Xoff`.
Ethernet *	Set various settings for external control via an Ethernet port. • IP Addr: Specifies the IP address. • Mask: Specifies the net mask. • Determine whether the Tester should be controlled via the router or gateway installed outside. • None: Controls the Tester without using the router and gateway. • ACT: Controls the Tester using the router or gateway. • Addr: Determine whether the Tester should be controlled via the router or gateway installed outside. This item is available when **Gateway** is set to `ACT`. Reboot the Tester after changing Ethernet setting.

GP-IB *	Sets the communication condition of the GP-IB port to use remote control. The option E02 is required to use this function.
	• Addr: Sets the address. The allowable range is from `1` to `15`.
	• EOI: Sets EOI control. Select `On` or `Off`.
	  • `On`: Enables EOI control. (Terminator setting is ignored).
	  • `Off`: Disables EOI control. (Terminator setting is valid).
	Reboot the Tester after changing GP-IB setting.

Terminator	Sets a terminator of output text data to `CR`, `LF` or `CR+LF`. This setting is used for external control with Serial, Ethernet and GP-IB. (The Terminator of input text data is always LF)
Printer	Set the destination to which the print data is sent when it is printed (when the **Print Screen** softkey is pressed) to `USB Memory` or `EPSON PM-G800`. • `USB Memory`: Saves a graphic file of screen in a USB memory device. The image format is PNG (Portable Network Graphics). • `EPSON PM-G800`: Prints a hardcopy of the screen in the specified printer.

Table 5-1 Input Items on the [Configuration] Screen

Input Field	Description
Beeper	Sets the beep sound. Selects `On` or `Off`. • `On`: Beeps for each step of operation. • `Off`: Beeps only for noticing some errors and warnings.

AutoBoot	Selects the system for automatic boot when a certain time (time-out period) has passed since the [Top Menu] screen was displayed.
	• Application: Sets the system from the followings
	  • `None`: Not automatically boots
	  • `FUNC GSM`: Boots the GSM option
	  • `FUNC WCDMA`: Boots the W-CDMA option
	  • `FUNC CDMA2000`: Boots the cdma2000 option
	• Timer: Sets the timeout timer from `10` to `60` seconds, or `–`. The timer is stopped if any softkey is pressed.
	  • —: Invalid when **Application** is set to `None`.
	  • `10` to `60`: Specifies timeout timer.

Date/ Time *	Sets the current date and time in the following formats: • YYYY: Sets the year. The allowable range is from `1990` to `2037`. • MM: Sets the month. The allowable range is from `01` to `12`. • DD: Sets the day. The allowable range is from `01` to `31`. • HH: Sets the hour. The allowable range is from `00` to `23`. • MM: Sets the minute. The allowable range is from `00` to `59`.
Option Install	Installs Option. Set 16-digit option key and press **Option Install** softkey without USB memory inserted.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Also, the following information is shown in the screen field:

- MAC Address
- Serial Number
- Options that are already installed. If no option is installed on the Tester, this area will be blank.

Option Installation/Backup

On the [Configuration] screen, you can install/back up option functions such as C01, C02, W00, and G00.

NOTE To install options, the option key suitable for required option is necessary. For further information, contact the Agilent Sales Department or an authorized distributor.

Option Installation

Install option functions to the Tester. There are two way to install it. One is using a USB memory device. The other is not using a USB memory device.

Using a USB memory Device

Prepare a USB memory device which contains an option key.

1 Press the **Config** softkey on the [Top menu] screen to display [Configuration] screen.

2 Insert USB memory device containing the Option Key into the USB connector on the front panel of the Tester.

3 Press the **Option Install** softkey.

4 Confirm an option number is added on the **Option** field of the screen, and remove the memory device from the tester.

Unusing a USB memory Device

Prepare the 16-digit option key/don't insert a USB memory device to the USB connector on the front panel of the Tester.

1 Press the **Config** softkey on the [Top Menu] screen to display the [Configuration] screen.

2 Sets the 16-digit option key to the **Option Install** field with the CURSOR CONTROL knob.

3 Press the **Option Install** softkey.

4 The option number is added in the **Option** field in the information field.

Option Backup

Before Back up option information, prepare the USB memory device containing a suitable Option Key.

1 Press the **Config** softkey on the [Top menu] screen to display [Configuration] screen.

2 Insert USB memory device containing the Option Key into the USB connector on the front panel of the Tester.

3 Press the **Option Backup** softkey.

4 **Option Backup complete!** should be displayed in the massage display area. Remove the USB memory device from the Tester.

Firmware Update Screen

The Tester provides three methods to update the firmware: USB (installs the firmware files placed in the USB memory device which is connected to the Tester), HDD (installs the firmware files placed in the Tester's internal HDD), SERVER (installs the firmware files placed on the external server). You can select one method by setting the Update Type to either of USB, HDD, and SERVER.

When using the USB, copy the firmware files into the USB memory device, then insert the USB memory device to the USB connector on the front panel of the Tester.

When using the HDD, copy the firmware files under the directory specified below in the Tester's internal HDD. To copy the files into the Tester, you may connect an external PC to the Tester via Ethernet, and copy the files on the external PC to the Tester by using a ftp utility software. Use the account name and the password specified below for the ftp connection.

- Account name: ftpuser
- Password: ftp
- Directory to save the files: /ftp

When using the external server, prepare the external server on which the destination firmware files are placed under the directory specified below. Create the account name with the password specified below on the external server in advance to allow the Tester to establish the ftp connection by using them.

- Account name: n9360a
- Password: n9360a
- Directory to save the files: /n9360a/ftpserver

The IP address of the external server needs to be configured in the Tester by using the external remote commands. For details of the commands, refer to *cdma2000 Option Programmer's Guide*.

Press the **FW Update** softkey after the **Config** on the [Top Menu] screen to display the [Firmware Update] screen as shown in Figure 5-7.

The following information is displayed on this screen.

- **Update Type?**

  Displays the selected method to update the firmware: USB, HDD, or SERVER..

- **Revision**:

  The current firmware revision in the Tester and the revision of the firmware files placed at the file storage area specified by the selected Update Type.

- **?.??.??:**

  Indicates that there is no firmware files at the file storage area specified by the selected Update Type.

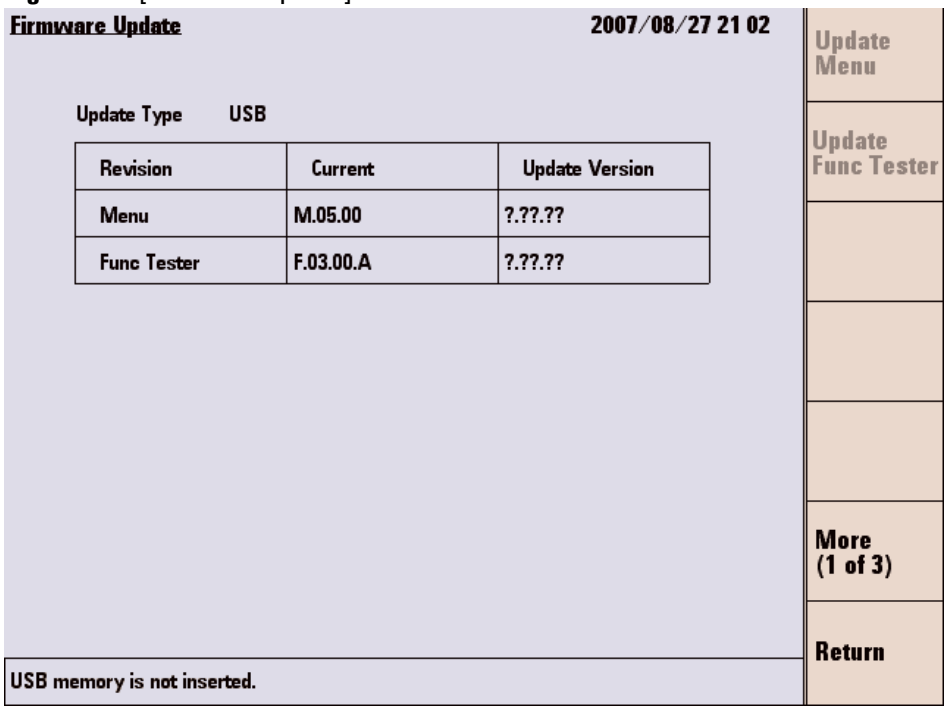
- **-.--.--: or "*.**.**"**

  Indicates that the firmware is not installed in the Tester.

- **(complete):**

  Indicates that the firmware is updated successfully. It is displayed in the Update Version display area.

Figure 5-7 [Firmware Update] Screen



Softkey Menu Field

Softkey Menu 1

- **Update Menu**: Updates the Top Menu functions.

- Press this softkey to update the Top Menu functions after placing the firmware files of the Top Menu functions at the file storage area specified by the selected Update Type. Restart the Tester after updating the Top Menu functions.
- **Update Func Tester**: Updates the Function Tester functions.
- Press this softkey to update the Function Tester functions after placing the firmware files of the Function Test functions at the file storage area specified by the selected Update Type.
- **More (1 of 3)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Configuration] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Update SYSTEM**: Updates the System functions. Press this softkey to update the System functions after placing the firmware files of the System functions at the file storage area specified by the selected Update Type. After updating the System functions, restarting the Tester may be required, depending on the type of the update.
- **Update Flash**: Displays the [Update Flash] Screen.
- **More (2 of 3)**: Displays to the Softkey Menu 3.

Softkey Menu 3

- **Clear HDD File**: Deletes all firmware files at the file storage area specified by the Update Type of HDD. This softkey is available only when selecting HDD as the Update Type.
- **Reload List**: Updates and displays the list of the firmware files placed at the file storage area specified by the Update Type of SERVER. This softkey is available only when selecting SERVER as the Update Type.
- **Update Type**: Sets the Update Type to either of USB, HDD, and SERVER. Pressing this softly changes the Update Type from USB to HDD, from HDD to SERVER, from SERVER to USB, sequentially.
- **More (3 of 3):** Returns to the Softkey Menu 1.

Message Field

The following messages are displayed depending on the state:

- **Press [Update xxxx] to update. (This message is displayed if any firmware exists in the USB memory.)**
- **Press [Update System] to update. ("xxxx") (This message is displayed when the available firmware files exist at the file storage area specified by the selected Update Type.)**
- **System condition error. Please execute system update.**
- **USB memory is not inserted.**
- **USB memory is accessed now. [Don't remove a USB memory!]**
- **No update file exists in the inserted USB memory device.**
- **No update file exists.**
- **Cannot get file-list from ftp server.**
- **Processing... [Don't remove a USB memory!]**
- **Processing...**
- **Completed!**
- **Completed! ("xxxx")**
- **FW-Update failed [Error number]**

NOTE Before pressing the **FW Update** softkey, make sure that the appropriate firmware files are placed at the file storage area specified by the selected Update Type.

Update Flash Screen

The Tester provides three methods to update the firmware: USB (installs the firmware files placed in the USB memory device which is connected to the Tester), HDD (installs the firmware files placed in the Tester's internal HDD), SERVER (installs the firmware files placed on the external server). You can select one method by setting the Update Type to either of USB, HDD, and SERVER.

When using the USB, copy the firmware files into the USB memory device, then insert the USB memory device to the USB connector on the front panel of the Tester.

When using the HDD, copy the firmware files under the directory specified below in the Tester's internal HDD. To copy the files into the Tester, you may connect an external PC to the Tester via Ethernet, and copy the files on the external PC to the Tester by using a ftp utility software. Use the account name and the password specified below for the ftp connection.

- Account name: ftpuser
- Password: ftp
- Directory to save the files: /ftp

When using the external server, prepare the external server on which the destination firmware files are placed under the directory specified below. Create the account name with the password specified below on the external server in advance to allow the Tester to establish the ftp connection by using them.

- Account name: n9360a
- Password: n9360a
- Directory to save the files: /n9360a/ftpserver

The IP address of the external server needs to be configured in the Tester by using the external remote commands. For details of the commands, refer to *cdma2000 Option Programmer's Guide*.

Press the Config softkey on the [Top menu] screen, and press the **FW Update**, **More(1 of 3)** and **Update Flash** softkeys. The [Update Flash] Screen as Figure 5-8 is displayed.

On this screen, the following information is displayed.

- **Update Type?**

  Displays the selected method to update the firmware: USB, HDD, or SERVER.

- **Revision**:

  Displays the current firmware revision in the Tester and the revision of the firmware files placed at the file storage area specified by the selected Update Type.

- **"?.??.??"**:

  Indicates that there is no firmware files at the file storage area specified by the selected Update Type.

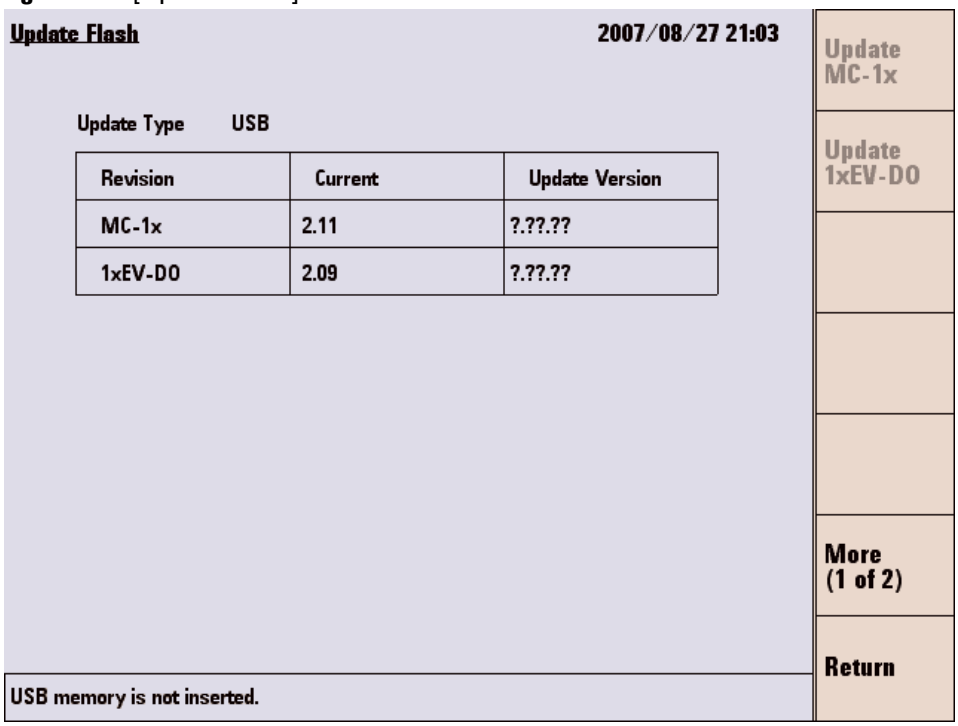
- **"-.--.--" or"*.**.**"**:

  Indicates that the firmware is not installed in the Tester.

- **"(complete)"**:

  Indicates that the firmware is updated successfully. It is displayed in the Update Version display area.

Figure 5-8 [Update Flash] Screen



Softkey Menu Field

Softkey Menu 1

- **Update MC-1x**: Updates the MC-1x functions.
- Press this softkey to update the MC-1x functions after placing the firmware files of the MC-1x functions at the file storage area specified by the selected Update Type.

- **Update 1xEV-DO**: Updates the 1xEV-DO functions.
- Press this softkey to update the 1xEV-DO functions after placing the firmware files of the 1xEV-DO functions at the file storage area specified by the selected Update Type.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Return to the [Firmware Updater] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or stores the screen image in a USB memory device, according to the **Printer** field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Message Field

Depending on the situation, the following message is displayed in the message field:

- **Press [Update xxxx] to update. (This message is displayed when the available firmware files exist at the file storage area specified by the selected Update Type.)**
- **USB memory is not inserted.**
- **No update files exists in the inserted USB memory device.**
- **No update file exists.**
- **Can not get file-list from ftp server.**
- **Processing... [Don't remove a USB memory!]**
- **Completed!**
- **FW-Update failed [Error number]**

NOTE Before pressing the **Update Flash** softkey, make sure that the appropriate firmware files are placed at the file storage area specified by the selected Update Type.

Network Setting

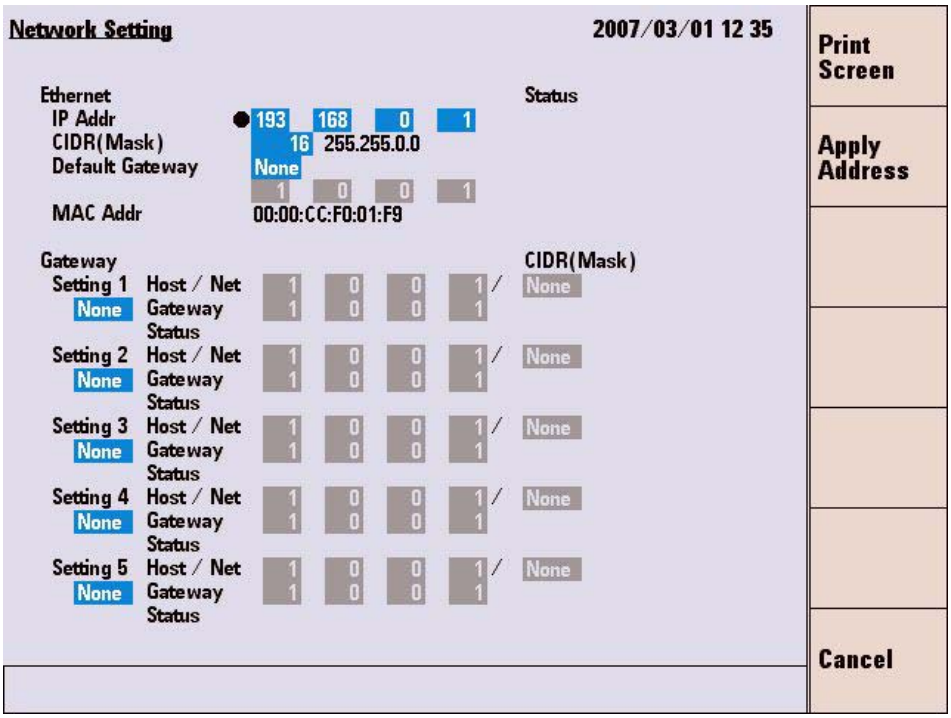
On the [Network Setting] screen, you can configure the network settings.

Press the **Network Setting** softkey on the [Configuration] screen, the [Network Setting] screen as shown in Figure 5-9 is displayed.

This screen allows you to configure various settings for the following.

- IP Address
- CIDR (Subnet Mask)
- Gateway

Figure 5-9 [Network Setting] Screen



Softkey Menu Field

Softkey Menu

- **Print Screen**: Prints a hardcopy of the screen or stores the screen image in USB memory device, according to the **Printer** field on the [Configuration] screen.

- **Apply Address**: Applies the changes of **IP Addr**, **Mask**, **Default Gateway**, **Host/Net**, **Gateway**, and **CIDR** to the Tester. This softkey is not activated when the [Network Setting] screen is displayed and no setting is changed. This softkey is activated when any input field is changed. After applying the settings, this softkey is inactivated again.
- **Cancel**: Returns to the [Configuration] screen. Values changed before the **Apply Address** softkey is pressed revert to the former values.

Screen Field

Set the input items required to use the Tester, referring to the description shown in Table 5-2.

Table 5-2 Input Items on the [Network Setting] Screen

Input Field	Description

IP Addr	Sets the IP address of the Tester. Possible values are as follows:
	• `1.0.0.1` to `223.255.255.255`. (From 192.168.1.1 to 192.168.1.255 are unavailable to setting.)
	  • The IP address setting supports Class A through C.
	  • The Tester does not support Class D (multicast address) and Class E (reserved address).
	  • The default IP address is `192.168.0.1`.
	  • If the IP address setting fails, **Invalid** is displayed in the Status field.
	  • Changes to the IP address is effective after pressing the **Apply Address** softkey.

CIDR (Mask)	Sets the subnet mask in CIDR format. Allowable setting values are as follows:
	• `1` to `31`
	  • The default mask value is `24` (`255.255.255.0`).
	  • If the mask value setting fails, `Invalid` is displayed in the Status field.
	  • Changes to the mask setting is effective after pressing the **Apply Address** softkey.
	Refer to Appendix B General information on cdma2000 system for details.

Table 5-2 Input Items on the [Network Setting] Screen (continued)

Input Field	Description
Default Gateway	Sets active or inactive of the Default Gateway setting and sets Default Gateway address. The allowable settings are as follows: • None: Default Gateway setting is inactivated. • ACT: Default Gateway setting is activated. • If you select **None**, the field to set an address will be grayed out and inactivated. • 1.0.0.1 to 223.255.255.255.255 (From 192.168.1.1 to 192.168. 1.255 are unavailable to setting.) • The IP address setting supports Class A through C. • The Tester does not support Class D (multicast address) and Class E (reserved address). • The Default Gateway setting is valid when you set allowable Default Gateway address, and the Tester and the Default Gateway belong to the same network. • If you set an address that does not belong to the subnet, **Unreachable** will be displayed in the Status section since the routing from this instrument cannot be resolved. • If the Default Gateway setting is set to NONE when booting, the address will be displayed as (**0.0.0.0**), which means invalid. • If the default gateway setting fails, **Invalid** will be displayed in the Status field. • The Default Gateway setting is effective after pressing **Apply Address** softkey.
Setting 1 through 5	Sets **Act/None** (active/inactive) of gateway settings from 1 to 5. The allowable setting is as follows: • None: The Gateway setting is inactivated. • ACT: The Gateway is activated. •If you select None, the field to set an address will be grayed out and unavailable.
Host/Net	Set the the destination host or network addresses for gateway setting from 1 through 5. Allowable settings are follows: • When Host address is specified (CIDR=None): 1.0.0.1 to 223.255.255.255 (From 192.168.1.1 to 192.168.1.255 are unavailable to setting.) • When Network address is specified (when the CIDR is not set to None): 1.0.0.0 to 223.255.255.255 (From 192.168.1.0 to 192.168.1.255 are unavailable to setting.) •The IP address setting supports Class A through C. •The Tester does not support Class D (multicast address) and Class E (reserved address). •When Gateway setting fails, **Invalid** will be displayed in the Status field. •The Host/Net setting takes effect after the **Apply Address** softkey is pressed. •If the CIDR is set to None, the setting for Host/Net will be treated as a Host address. •If the CIDR is set to other than None, the setting for Host/Net will be treated as a Net address. • In this case, the Host-ID part of an address specifies 0. If it specifies other than 0, **Invalid** will be displayed in the Status section. • The address setting is automatically changed to 1.0.0.1 when the address was set to 1.0.0.0 and the Host/Net setting is changed from network to host.

Table 5-2 Input Items on the [Network Setting] Screen (continued)

Input Field	Description
Gateway	Sets the gateway addresses for gateway setting from 1 through 5. Allowable settings are as follows: • 1.0.0.1 to 223.255.255.255 (From 192.168.1.1 to 192.168.1.255 are unavailable to setting.) • The IP address setting supports Class A through C. • The Tester does not support Class D (multicast address) and Class E (reserved address). • A gateway setting is valid when you set the allowable address and the Tester and the Gateway belong to the same network.. • If the Gateway setting is set to NONE when booting, the address will be displayed as (**0.0.0.0**), which means invalid. • If the Tester and Gateway do not belong to the same network, **Unreachable** will be displayed in the Status field. • The Gateway setting takes effect after the **Apply Address** softkey is pressed.
CIDR	Set the subnet masks for the destination address in CIDR format from Setting 1 through 5. Allowable setting values are as follows: • None or 1 to 31. • If the CIDR is set to None, the **Host/Net** setting is treated as a host address. • If the CIDR is set to other than None, the **Host/Net** setting is treated as a network address. • If the **Gateway** setting is disabled when booting, None will be displayed in the CIDR field. • Changes to the mask setting is effective after pressing the **Apply Address** softkey.

In addition, this screen displays the following information:

- MAC address.
- Status:
  - Shows how each address is configured. (unmodifiable.)
  - If any abnormality is detected in the IP Addr/Mask setting, **Invalid** will be displayed.
  - If any abnormality is detected in the Default Gateway setting, **Invalid** will be displayed.
  - If the Tester and the Default Gateway does not belong to the same subnet as this instrument, **Unreachable** will be displayed.
  - If any abnormality is detected in the Gateway setting, **Invalid** will be displayed.
  - If the Tester and gateway does not belong to the same network, **Unreachable** will be displayed.

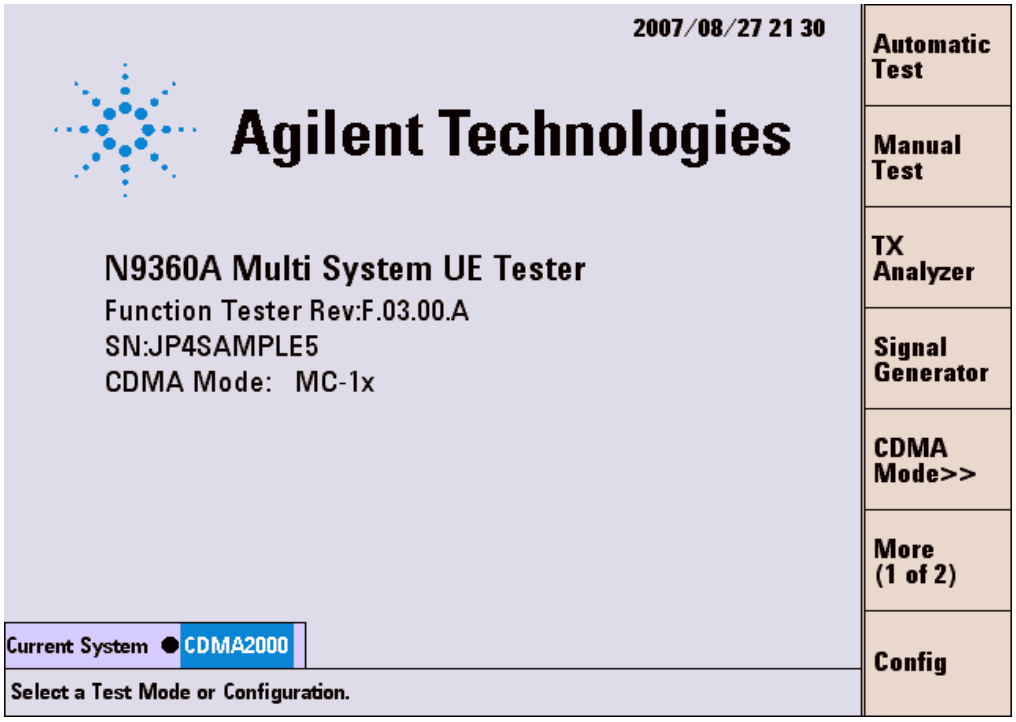
Initial Screen

When the **CDMA2000** softkey on the [Top Menu] screen is pressed, the [Initial] screen as Figure 5-10 is displayed.

This screen is used to select one of the function modes or to return to the [Top Menu] screen.

To return to the [Initial] screen from any function mode, press the **Return** softkey (multiple times if necessary).

Figure 5-10 [Initial] Screen



Softkey Menu Field

Softkey Menu

- **Automatic Test**: Displays the [Auto Test: Stand-by] screen. Refer to Automatic Test (MC-1x Mode) on page 5-29.
- **Manual Test**: Displays the [Manual Test: Stand-by] screen. Refer to Manual Test (MC-1x Mode), or Manual Test (1xEV-DO Mode).
- **TX Analyzer**: Displays the [TX Analyzer: Stand-by] screen. Refer to TX Analyzer.
- **Signal Generator**: Displays the [Signal Generator] screen. Refer to Signal Generator.

- **CDMA Mode>>**: Selects the CDMA mode. Displays the Sub Softkey Menu 3 to select the mode from **MC-1x** or **1xEV-DO**.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Config**: Displays the [Configuration] screen. Refer to Configuration on page 5-137.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or stores the screen image in the USB memory, according to the **Printer** field on the [Configuration] screen.
- **Return to Menu**: Displays the screen to return to the [Top Menu] screen. Refer to Return to Menu Screen on page 5-26.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Softkey Menu 3

- **MC-1x**: Changes the system to the MC-1x mode of the **CDMA Mode**. The C00 and C01 option are required.
- **1xEV-DO**: Changes the system to the 1xEV-DO mode of the **CDMA Mode**. The C00, C01 and C02 options are required.
- **Cancel**: Cancels changing the CDMA mode and returns to the Softkey Menu 1.

Screen Field

The firmware name and revision number currently installed are shown. In addition, it displays the current cdma mode.

Set the input field in the screen field according to the following description of Table 5-3.

Table 5-3 Input Items on the [Initial] Screen

Input Field	Description
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test. For this, up to 4 files are displayed.

Message Field

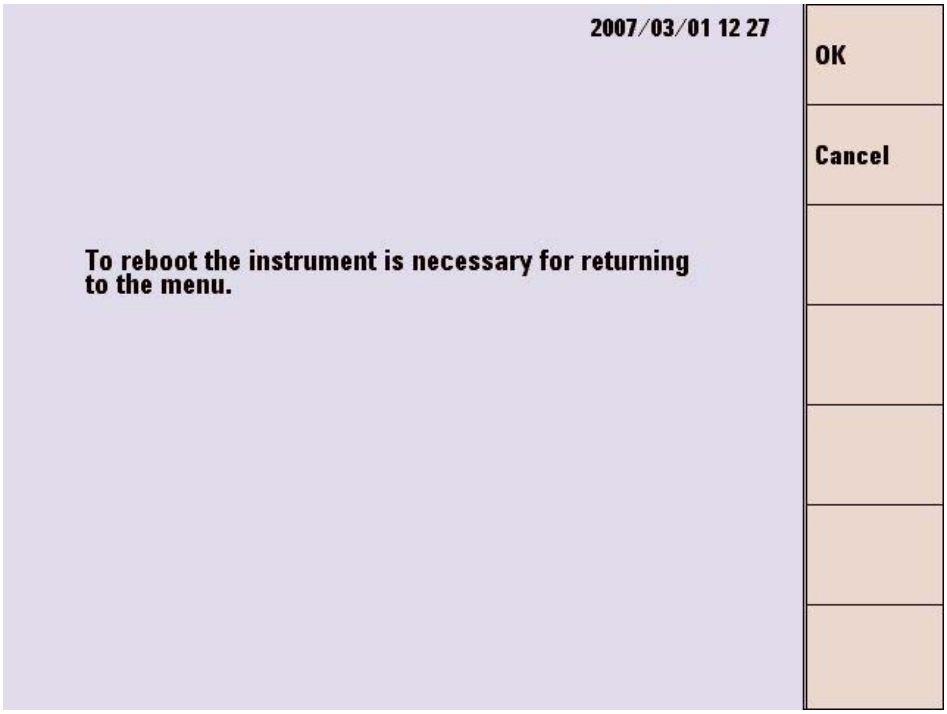
The following message is displayed in the message field:

Select a Test Mode or Configuration.

Return to Menu Screen

When the **Return to Menu** softkey is pressed on the [Initial] screen, the following screen as Figure 5-11 is displayed.

Figure 5-11 [Return to Menu] Screen



Softkey Menu Field

Softkey Menu

- **OK**: Returns to the [Top Menu] screen
- **Cancel**: Returns to the [Initial] screen.

Screen Field

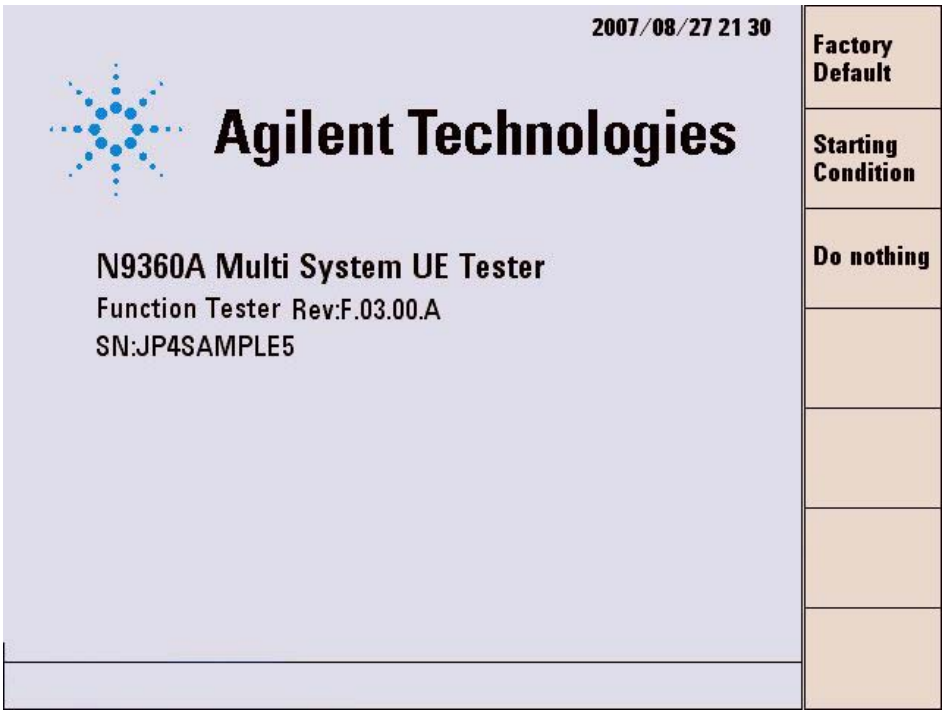
The following message is displayed in the screen field:

To reboot the instrument is necessary for returning to the menu.

PRESET Mode Selection Screen

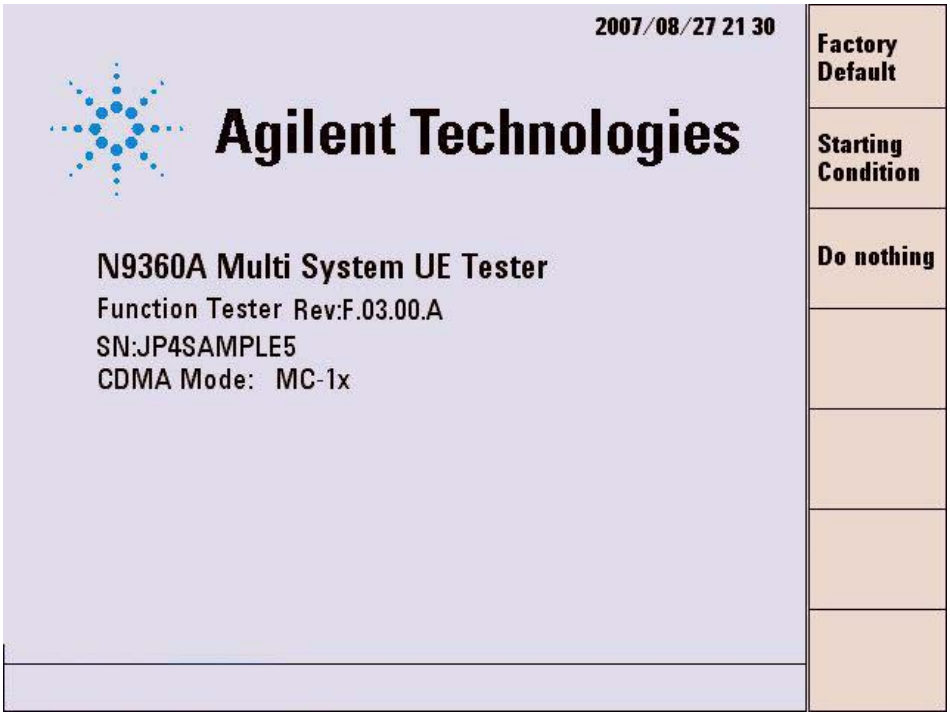
When the **PRESET** button on the front panel of the Tester is pressed before selecting the system, the [PRESET Mode Selection] Screen (Top Menu) as Figure 5-12 is displayed.

Figure 5-12 [PRESET Mode Selection] Screen (Menu)



Press the **PRESET** key after selecting cdma2000 system, the [PRESET Mode Selection] Screen (cdma2000) as Figure 5-13 appears.

Figure 5-13 [PRESET Mode Selection] Screen (cdma2000)



Softkey Menu Field

Softkey Menu

- **Factory Default**: All the parameters of the Tester other than parameters related to external control revert to the default. They revert to the factory default. After selecting this softkey, the [Top Menu] screen or the [Initial] screen for the cdma2000 appear. This influences the parameters of GSM, W-CDMA, and cdma2000.
- **Starting Condition**: Values in the input items revert to those values when the Tester was booted. The softkey memory (channel, frequency, and level) and the values for the Caller ID and for the Authentication Key that were set through the external control commands do not revert. After selecting this softkey, the [Top Menu] screen or the [Initial] screen for the cdma2000 appear. This influences the parameters of GSM, W-CDMA, and cdma2000.
- **Do nothing**: Initialization of the parameters is not performed. After selecting this softkey, the [Top Menu] screen or the [Initial] screen for the cdma2000 appears.

Automatic Test (MC-1x Mode)

Overview

Feature of Automatic Test

- Pass or Fail test results in the test flow and measurement items are automatically obtained.
- This function executes RF test changing frequencies on up to six channels automatically. Combining Sequence1 and Sequence2 enables measurement up to 12 channels in one test.

Setting for Automatic Test in Configuration Mode

- Parameters:

  The parameters used in Automatic Test are set on the [Configuration: Test Sequence] and [Configuration: Test Condition] screens.

- Loss:

  The path loss values for each band can be set on the [Configuration] screen to correct the RF attenuation between the mobile phone and the Tester. Refer to Actual Input/Output Level and Correction on page 4-19 for correction of input/output signal.

- Test limits:

  The test limits for each test can be defined on the [Configuration: Test Condition (Limit)] screen. The test result (pass or fail) for each test is automatically judged by using the predefined test limits.

- ATT In/Out:

  The path loss values for each traffic channel can be set on the [Configuration: Test Sequence] screen to correct the RF tests results and RF output level at each traffic channel in each band.

- Sequence:

  Up to two test sequences can be set on the [Configuration: Test Sequence] screen.

Automatic RF Test

Table 5-4 shows the measurement items of the RF test. For the judgment criteria of measurement items, refer to Table 5-49.

Table 5-4 Measurement Items for Automatic Test (MC-1x)

Measurement Item	Description
Access Probe Power	Measures and displays the access probe power when receiving an access probe before connection.
ILP (Down)	Measures the transmission power difference of the mobile phone when the Tester controls the transmission power of the mobile phone down to 10 dB.
ILP (Up)	Measures the transmission power difference of the mobile phone when the Tester controls the transmission power of the mobile phone up to 10 dB.
Max TX Power	Measures the maximum transmission power of the mobile phone.
Min TX Power	Measures the minimum transmission power of the mobile phone.
Frequency Error	Measures the transmission frequency error of the mobile phone.
Rho/Multi-code Rho	Measures the transmission wave modulation accuracy (ρ) for the mobile phone.
Time Offset	Measures the transmission timing error of the mobile phone.
Sensitivity/FER	Measures the frame error rate.

NOTE

A changing magnification softkey to input numerical values will be enabled. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Default settings for the Tester at the time when the power is turned on represent the settings that were set last time the power was turned off.

Stand-by Screen

When the **Automatic Test** softkey is pressed on the [Initial] screen, the [Auto Test: Stand-by] simplified screen is displayed. Then, any of the [Auto Test: Stand-by] simplified screen (Figure 5-14), the [Auto Test: Stand-by] detailed screen (Figure 5-15), or the [Auto Test: Stand-by] value screen (Figure 5-16) is displayed according to the setting of the **Simple**, the **Detail** and the **Value** softkey.

Figure 5-14 [Auto Test: Stand-by] Simplified Screen (MC-1x)

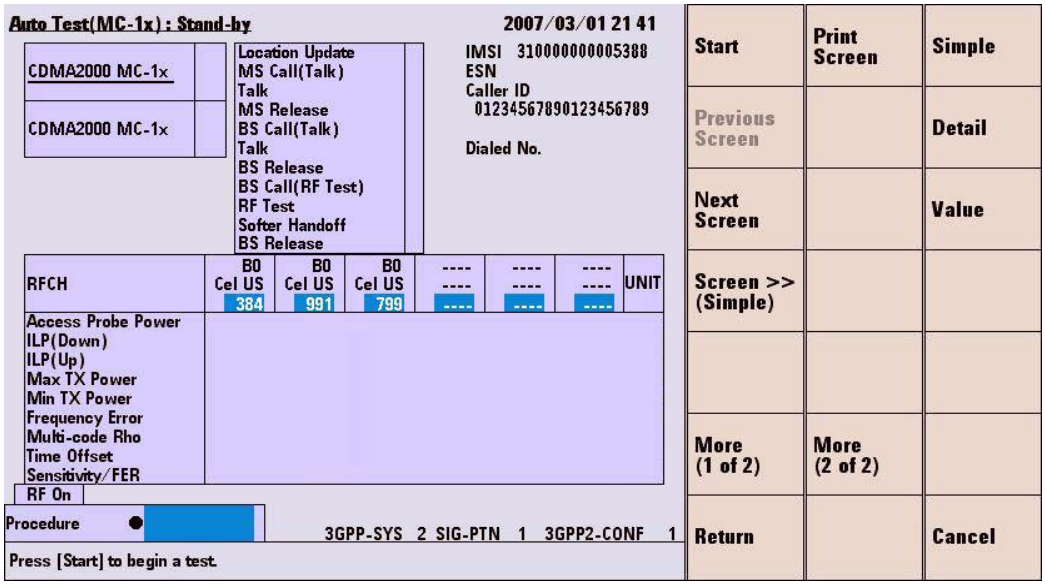


Figure 5-15 [Auto Test: Stand-by] Detailed Screen (MC-1x)

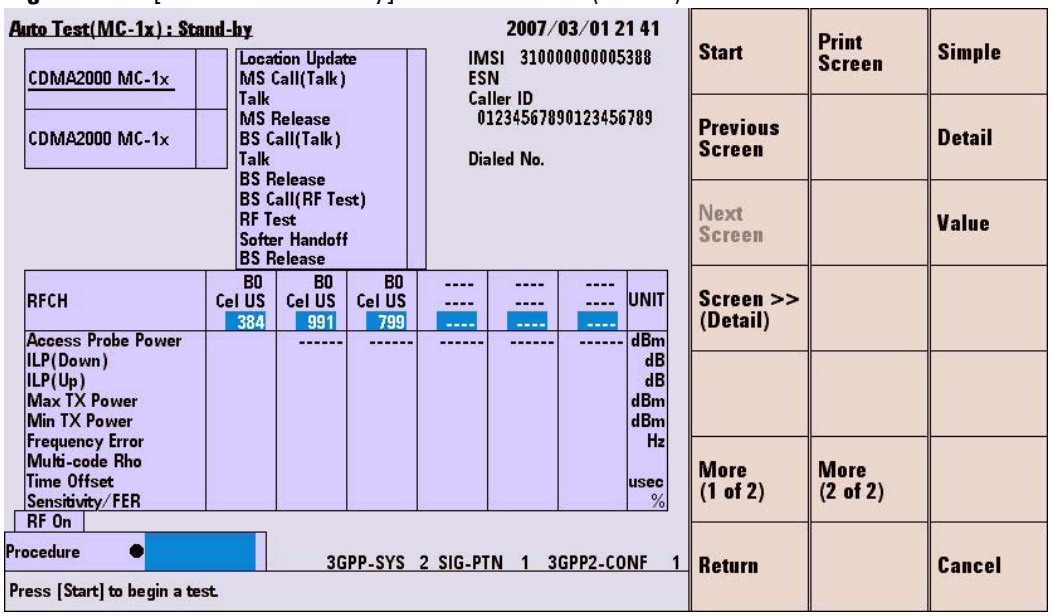
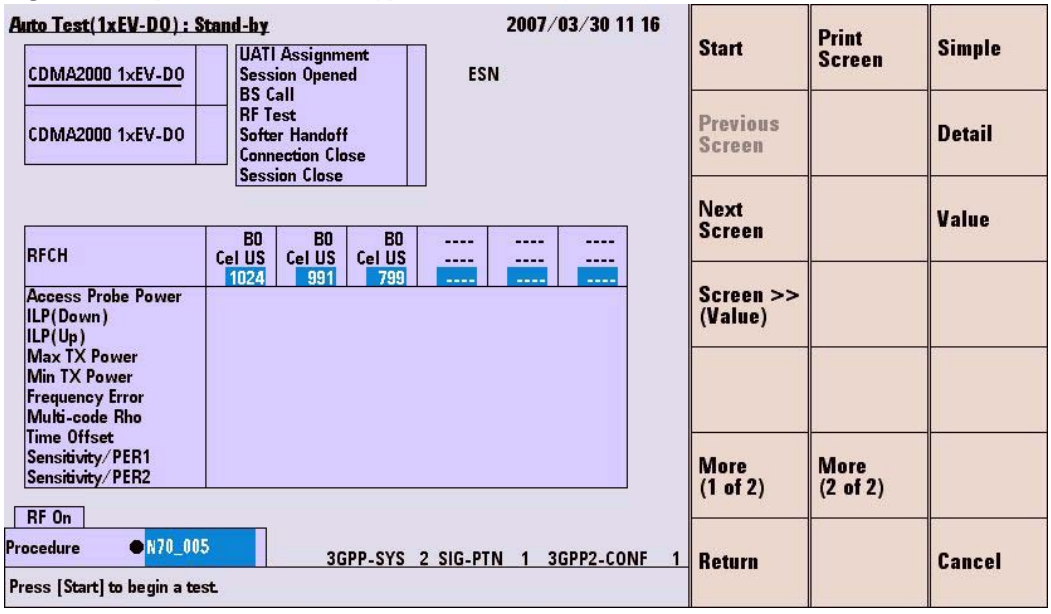


Figure 5-16 [Auto Test: Stand-by] Value Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Start**: Starts testing the mobile phone by Automatic Test.
- **Previous Screen**: Changes the screen to the previous sequence one. This softkey is inactivated when the screen of the sequence 1 is displayed.

- **Next Screen**: Changes the screen to the next sequence one. This softkey is inactivated when the sequence 2 is set to `Off` or the screen of Sequence 2 is displayed.
- **Screen>>**: Displays the softkey menu 3 containing the softkeys to select the display mode.
- **More (1 of 2)**: Displays the softkey menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the softkey menu 1.

Softkey Menu 3

- **Simple**: Displays a Pass or Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass or Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels selecting the display mode and returns to the softkey menu 1.

Screen Fields

The input fields of parameters except procedure are protected if the **Panel Key** is set to `Lock` on the [Configuration] screen.

Set the input fields in the screen field according to the following description of Table 5-18 to execute a new test. The file name for the file currently in use will be displayed in this item.

Table 5-5 Input Items on the [Auto Test: Stand-by] Screen (MC-1x)

Input Field	Description
Procedure	Specify a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.
RFCH *	Specify the band and channel number. This parameter can be changed when in the stand-by status. The allowable range of channel number for each band is as follows: • B0:Cel US 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1:PCS US 0 to 1199CH • B3:Cel JP 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4:PCS KR 0 to 599CH • B6:IMT-2K 0 to 1199CH • "----":Skip Refer to Appendix B General information on cdma2000 system for details.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information from the mobile phone as Table 5-6 is displayed in the screen field.

Table 5-6 Items that provide information from the Mobile Phone and the Tester on the [Automatic Test: Stand-by] Screen (MC-1x)

Item Information	Description
IMSI	Displays the International Mobile Subscriber Identity sent from the mobile phone, with Max. 15 digits. If the state is Stand-by and IMSI information has not been received, data from the procedure file (dummy data) is displayed.
ESN	Displays the international mobile station identity that is sent from the mobile phone, with Max. 8 digits. This number is not displayed when the state is Stand-by.
Caller ID	Displays dialer number sent from the Tester at BS Call step. Max. 32 digits, including arbitrary digits (0 to 9) and symbols (* and #) can be displayed usable. This value can be changed only by using a remote control command.
Dialed No.	Displays the number dialed from the mobile phone at MS Call step.

Table 5-6 Items that provide information from the Mobile Phone and the Tester on the [Automatic Test: Stand-by] Screen (MC-1x)

Item Information	Description
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the [Stand-by] screen:

Press {Start} to begin a test.

The word surrounded by {} in the message field denotes the softkey.

Measuring Screen

When the **Start** softkey is pressed on the [Auto Test: Stand-by] screen, a [Auto Test: Measuring] Simplified Display Screen as shown in Figure 5-17 is displayed and then a test starts.

The status of sequences is shown on the upper left corner of the screen. The sequence under test execution is underlined.

One of the test flow steps is highlighted to show which step is currently being tested. While the RF Test step is highlighted, each of the measurement items is highlighted and measured sequentially to obtain a measurement result.

The test result of sequences and signaling steps are shown as follows:

- **P**: Shown on blue background when the test is passed.
- **F**: Shown on red background when the test is failed.

During test, any of the [Auto Test: Measuring] Simplified Screen (MC-1x) (Figure 5-17), the [Auto Test: Measuring] Detailed Screen (MC-1x) (Figure 5-18), or the [Auto Test: Measuring] Value Screen (MC-1x) (Figure 5-19) is displayed, according to the setting of the **Simple**, the **Detail** or the **Value** softkey.

Figure 5-17 [Auto Test: Measuring] Simplified Screen (MC-1x)

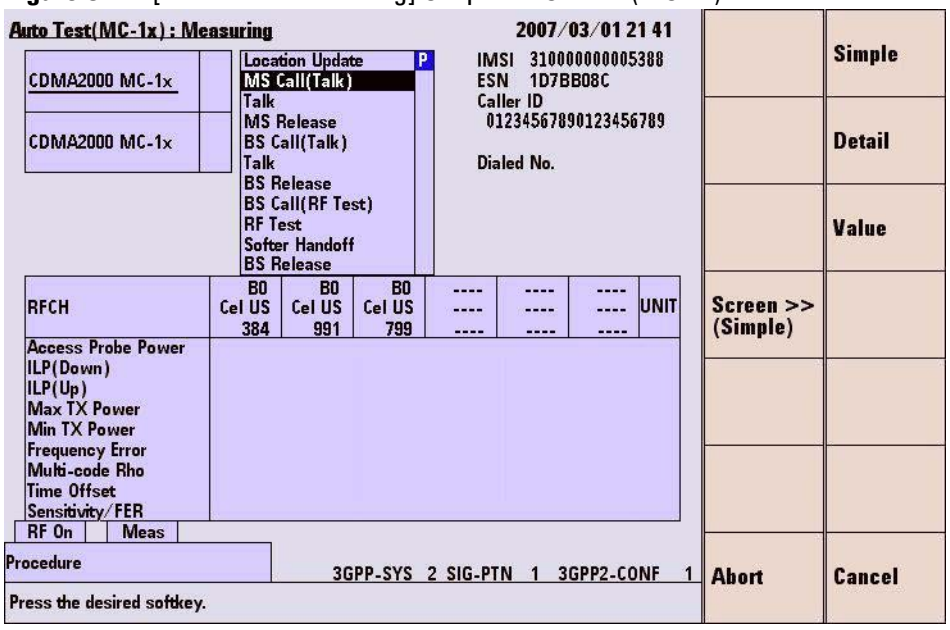


Figure 5-18 [Auto Test: Measuring] Detailed Screen (MC-1x)

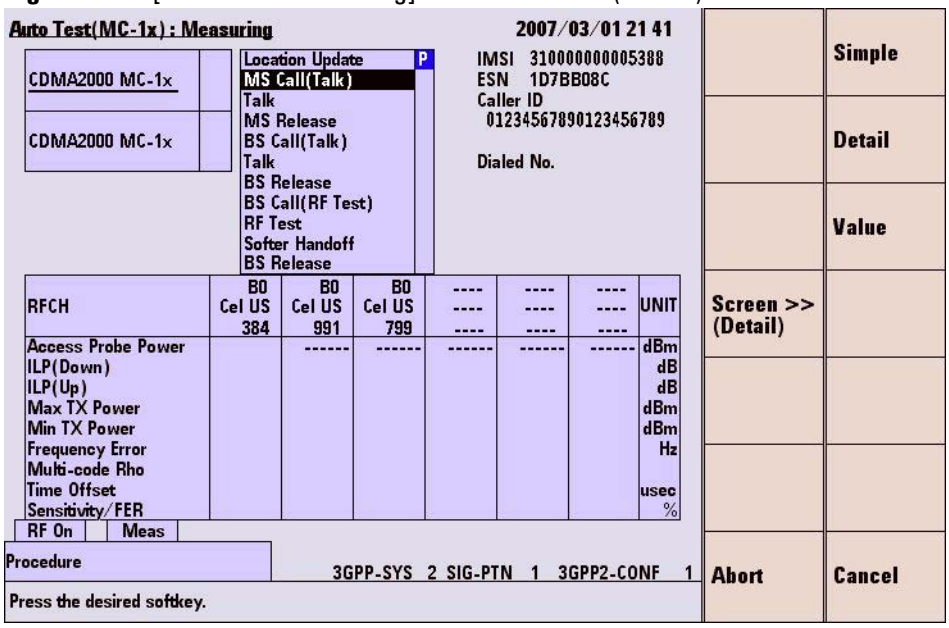
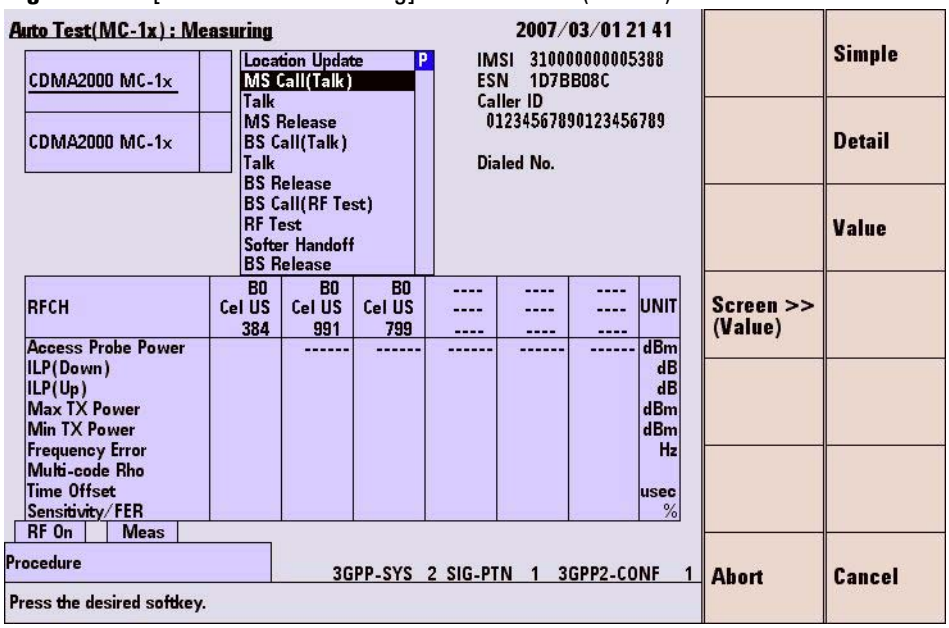


Figure 5-19 [Auto Test: Measuring] Value Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Screen>>**: Displays the softkey menu 2 containing the softkeys to select the display mode.

- **Abort**: Aborts the measurement and returns to the [Stand-by] screen.

Softkey Menu 2

- **Simple**: Displays a Pass/Fail result of whole measurement in the center of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the softkey menu 1.

Screen Field

The information from the mobile phone as Table 5-7 is displayed in the screen field

Table 5-7 Items that provide information from the Mobile Phone and the Tester on the [Automatic Test: Measuring] Screen (MC-1x)

Item Information	Description
IMSI	Displays the International Mobile Subscriber Identity sent from the mobile phone.
ESN	Displays the international mobile station identity that is sent from the mobile phone.
Caller ID	Displays dialer number sent from the Tester at BS Call step. Maximum 32 digits, including arbitrary digits (0 to 9) and symbols (* and #) can be usable. This value can be changed only by using a remote control command.
Dialed No.	Displays the number dialed from the mobile phone at MS Call step.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

The following message is displayed on [Measuring] screens:

Press the desired softkey.

Measuring Talk Screen

During Talk test execution, a [Measuring] Talk screen is displayed.

This test is to determine whether the test is passed or failed by checking the quality of the looped back voice.

Any of the [Automatic Test: Measuring] Talk Simplified Screen (MC-1x) (Figure 5-20), the [Automatic Test: Measuring] Talk Detailed Screen (MC-1x) (Figure 5-21), or the [Automatic Test: Measuring] Talk Value Screen (MC-1x) (Figure 5-22) is displayed, according to the setting of the **Simple**, the **Detail** or the **Value** softkey.

Figure 5-20 [Automatic Test: Measuring] Talk Simplified Screen (MC-1x)

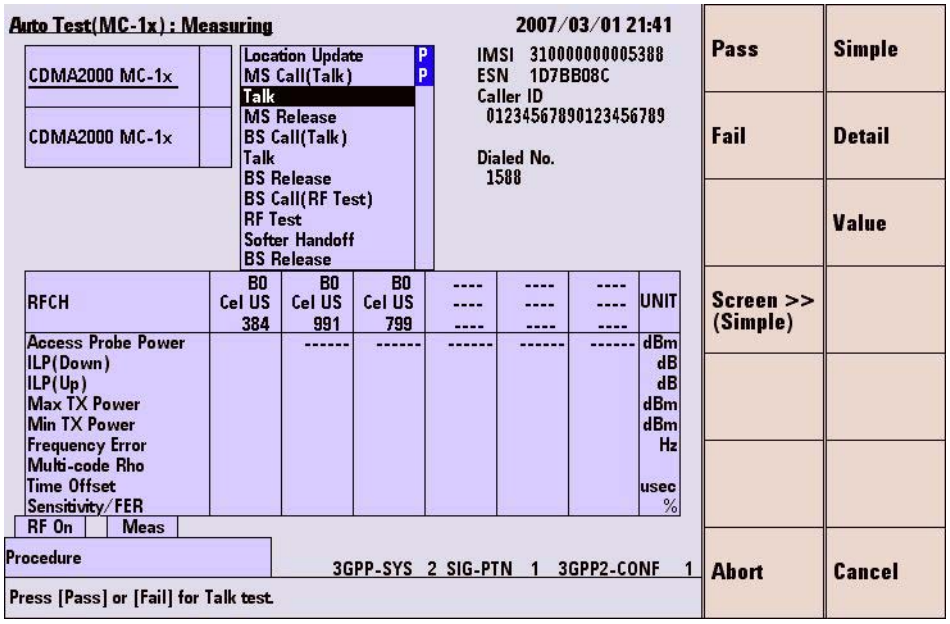


Figure 5-21 [Automatic Test: Measuring] Talk Detailed Screen (MC-1x)

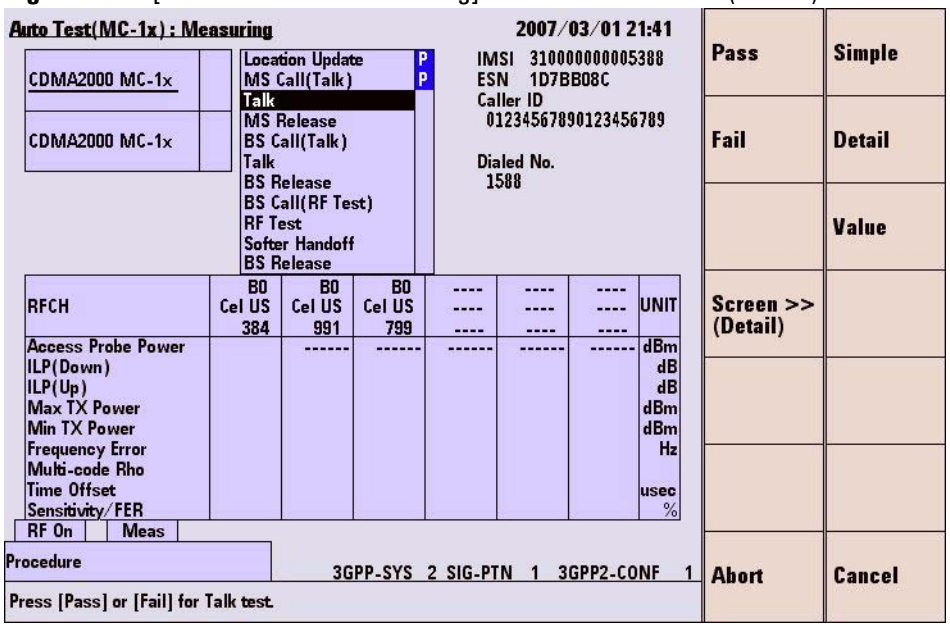
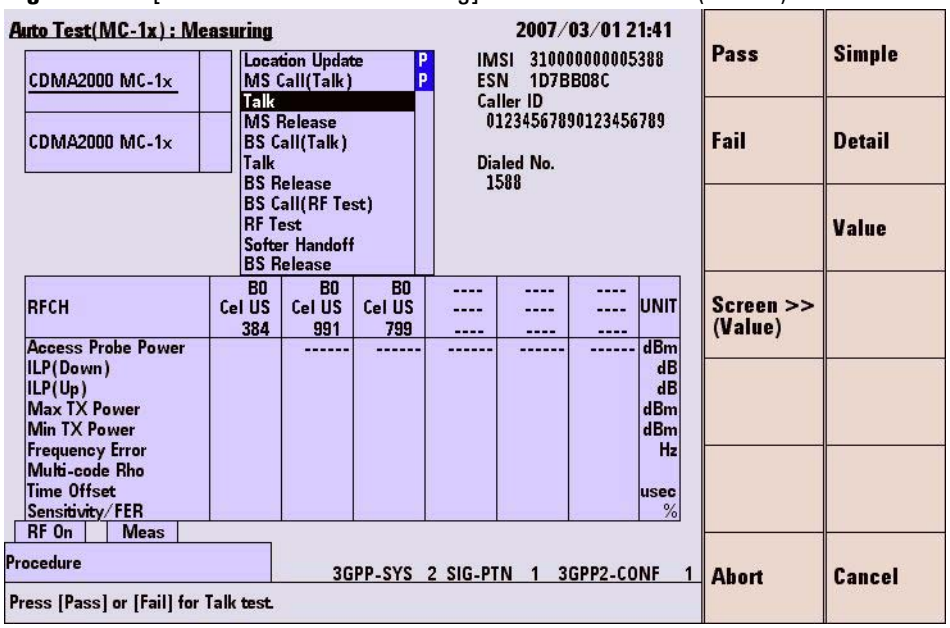


Figure 5-22 [Automatic Test: Measuring] Talk Value Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Pass**: Press this softkey if the loop back voice is of good quality. Then this softkey disappears and **P** is shown next to the **Talk** step.

- **Fail**: Press this softkey if the loop back voice is of poor quality or the voice does not loop back. Then this softkey disappears and **F** is shown next to the **Talk** step.
- **Screen>>**: Displays the softkey menu 2 containing the softkeys to select the display mode.
- **Abort**: Aborts the test and returns to the [Stand-by] screen.

Softkey Menu 2

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the softkey menu 1.

Screen fields

During the test, the operator must respond to operation or Tester messages by pressing the appropriate softkeys of the Tester or by pressing the mobile phone's button.

The information from the mobile phone is displayed at the upper right corner in the screen field. Refer to Table 5-7.

Message Field

The following message is displayed in the message field during Talk test on [Measuring] screens which determines the quality of the loop back voice.

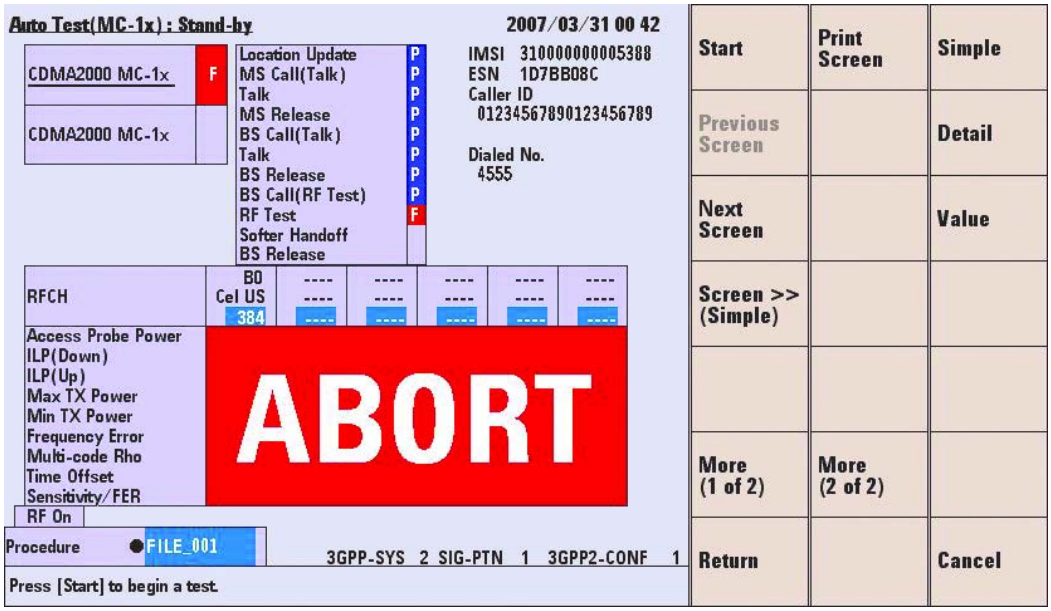
Press {Pass} or {Fail} for Talk test.

The word surrounded by {} in the message field denotes the softkey.

Aborted screen

When the **Abort** softkey is pressed, the measurement is aborted. Any of the [Automatic Test: Stand-by] Aborted Simplified Screen (MC-1x), the [Automatic Test: Stand-by] Aborted Detailed Screen, or the [Automatic Test: Measuring] Aborted Value Screen is displayed, depending on the previous setting of the **Simple**, the **Detail** or the **Value** softkey. Figure 5-23 is a screen with the **Simple** softkey setting.

Figure 5-23 [Automatic Test: Stand-by] Aborted Simplified Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Start**: Starts testing the mobile phone by the Automatic Test.
- **Previous Screen**: Displays the previous sequence screen. This softkey is inactivated when the screen for the sequence 1 is displayed.
- **Next Screen**: Displays the next sequence screen. This softkey is inactivate when the sequence 2 is set to `Off` or the screen of Sequence 2 is displayed.
- **Screen>>**: Displays the softkey menu 3 to select the display mode.
- **More (1 of 2)**: Displays the softkey menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the softkey menu 1.

Softkey Menu 3

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the softkey menu 1.

Screen Field

The information in the screen field is displayed. Refer to Table 5-5 and Table 5-7. The input field in the screen field can be changed for a new test.

Message Field

The following message is displayed in the message field on the **[abort]** screen.

Press [Start] to begin a test.

The word surrounded by [ ] in the message field denotes the softkey.

Description

The measurement results up to an abort of the test are shown.

The status of the Tester is returned to stand-by.

The status of the mobile phone is not ensured; therefore, the mobile phone power-on process is required for a new test.

Sequence 2 Screen

When Sequence 2 is set on the [Configuration: Test Sequence] screen in the Configuration mode, Sequence 2 start after completion in Sequence 1.

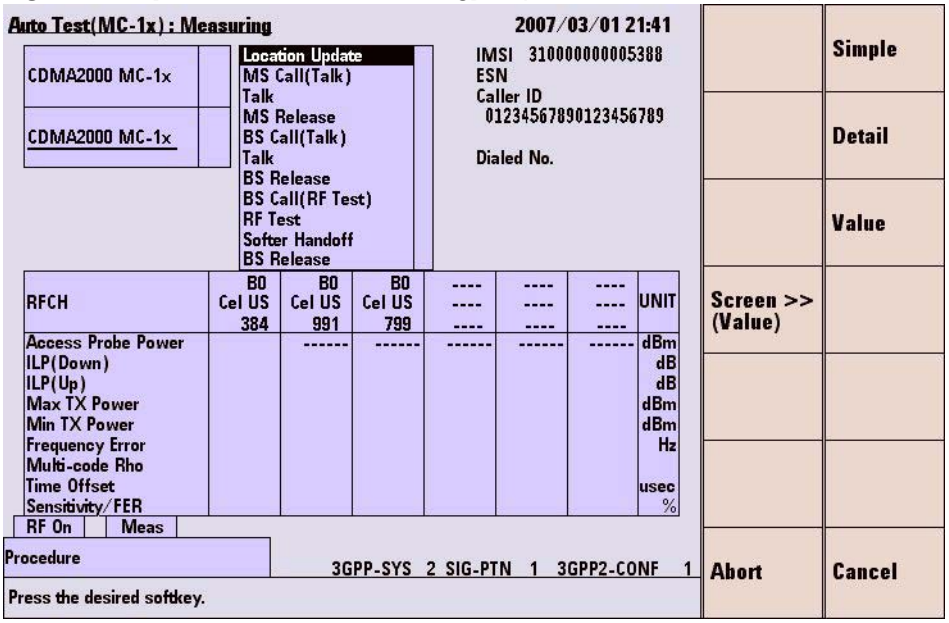
When Sequence 2 is started, the [Automatic Test: Measuring] Sequence 2 Screen (MC-1x) as Figure 5-24 is displayed. (Figure 5-24 shows a screen changing to Sequence 2, when Sequence 1 is set to cdma2000 MC-1x, Sequence 2 is set to cdma2000 MC-1x, and System Handoff, the 11th of Sequence 1, is set to **BS Release** (Run).)

The sequences state is shown on the upper left screen. The sequence in processing (Sequence 2 now) is underlined.

Test result of sequences is shown as follows:

- **P**: Displays on blue background when the test is passed.
- **F**: Displays on red background when the test is failed.

Figure 5-24 [Automatic Test: Measuring] Sequence 2 Screen (MC-1x)



Softkey Menu 1

- **Screen>>**: Displays the softkey menu 2 containing the softkeys to select the display mode.
- **Abort**: Aborts the test and returns to the [Stand-by] screen.

Softkey Menu 2

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the softkey menu 1.

Measurement Result Display Screen

When all the pre-configured tests are finished, the measurement results are displayed in the stand-by screens.

The results are displayed on the [Automatic Test: Stand-by] Result Simplified Screen for Measurement Results (MC-1x) (Figure 5-25), the [Automatic Test: Stand-by] Result Detailed Screen (MC-1x) for Measurement Results (Figure 5-26) or the [Automatic Test: Stand-by] Result Value Screen (MC-1x) for Measurement Results (Figure 5-27) depending on the previous setting of the **Simple**, the **Detail** or the **Value** softkey.

Measurement results are shown as follows:

- `Pass` or measurement value: Displayed on blue background when the measurement is passed.
- `Fail` or measurement value: Displayed on red background when the measurement is failed.

Measurement result is shown depending on the display mode.

- On the result simplified screen, an enlarged `Pass` is shown in the center of the measurement result field when all measurement items are passed. An enlarged `Fail` is shown when at least one measurement item is failed.
- On the result detailed screen, a Pass or Fail measurement result is shown at each item cell in the measurement result field.
- On the result value screen, a measurement value is shown at each item cell in the measurement result field.

When some test items and measurement items are set to be skipped on the [Configuration: Test Sequence] screen, each result of test items and measurement items is shown by – or —.

Figure 5-25, Figure 5-26, and Figure 5-27 are the screens when both Sequence 1 and Sequence 2 are set to execute.

Figure 5-25 [Automatic Test: Stand-by] Result Simplified Screen (MC-1x) for Measurement Results

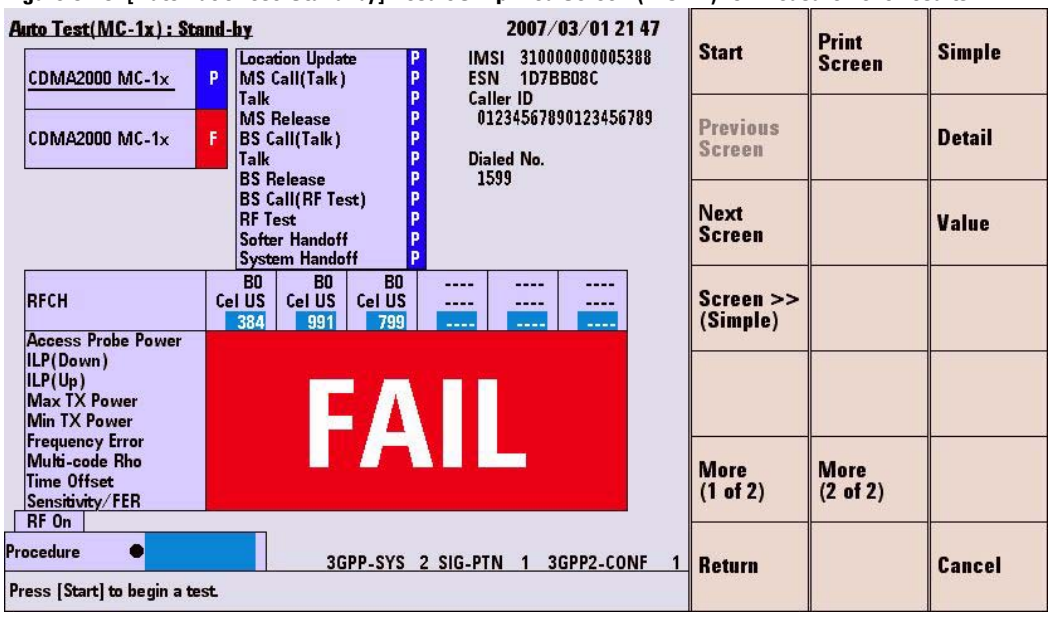


Figure 5-26 [Automatic Test: Stand-by] Result Detailed Screen (MC-1x) for Measurement Results

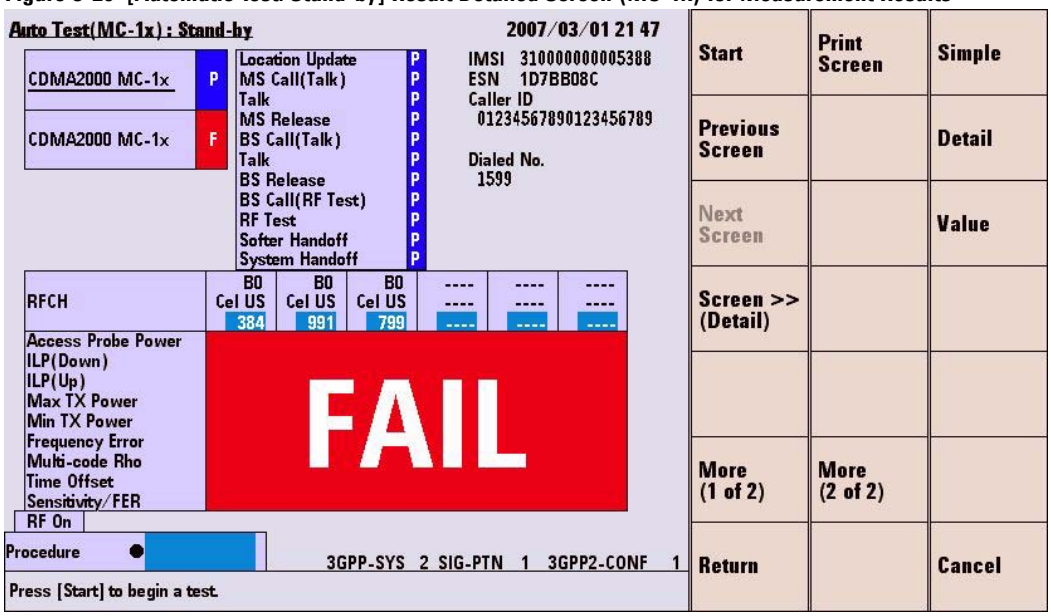
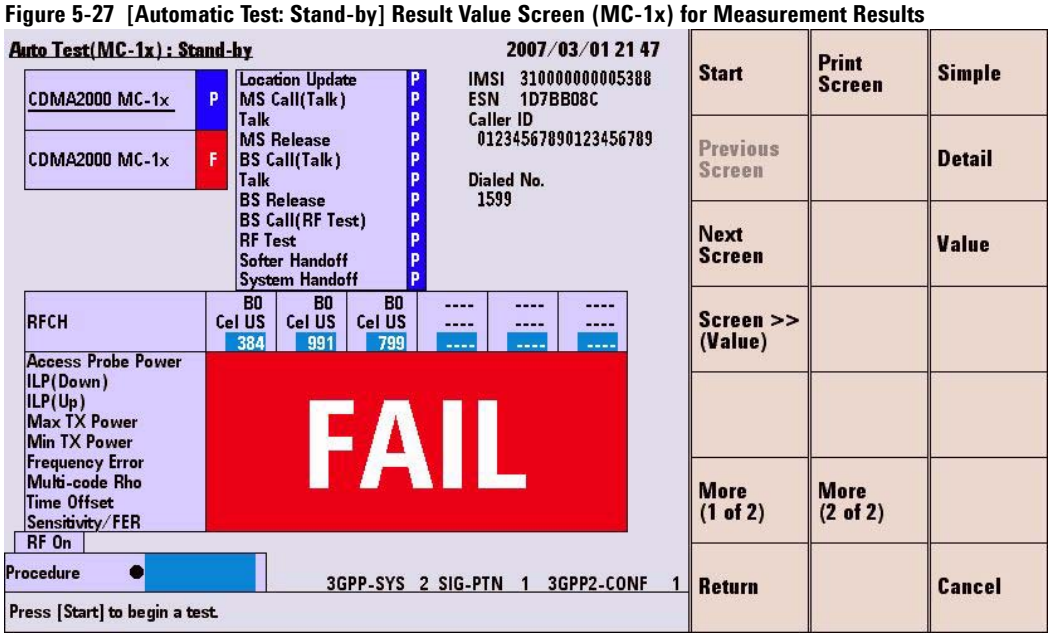


Figure 5-27 [Automatic Test: Stand-by] Result Value Screen (MC-1x) for Measurement Results



Softkey Menu Field

Softkey Menu 1

- **Start**: Starts the testing the mobile phone by the Automatic Test.
- **Previous Screen**: Displays the previous sequence screen. This softkey is inactivated when the screen of the sequence 1 is displayed.
- **Next Screen**: Displays the next sequence screen. This softkey is inactivated when the sequence 2 is set to `Off` or the screen of Sequence 2 is displayed.
- **Screen>>**: Displays the softkey menu 3 containing the softkeys to select the display mode.
- **More (1 of 2)**: Displays the softkey menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the softkey menu 1.

Softkey Menu 3

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the softkey menu 1.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-8 to execute a new test.

Table 5-8 [Automatic Test: Stand-by] Result Screen Input Field (MC-1x)

Input Field	Description
Procedure	Specify a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.
RFCH *	Specify the band and channel number. This parameter can be changed when in the stand-by status. The allowable range of channel number for each band is as follows: • B0(Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1(PCS US): 0 to 1199CH • B3(Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4(PCS KR): 0 to 599CH • B6(IMT-2K): 0 to 1199CH • "----":Skip Refer to Appendix B, Channel frequency and channel number for details.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information from the mobile phone as Table 5-9 is displayed in the screen field.

Table 5-9 Items that provide information from the Mobile Phone and the Tester on the [Automatic Test: Stand-by] Result Screen (MC-1x)

Item Information	Description
IMSI	Displays the International Mobile Subscriber Identity sent from the mobile phone.
ESN	Displays the international mobile station identity that is sent from the mobile phone.
Caller ID	Displays dialer number sent from the Tester at BS Call step.
Dialed No.	Displays the number dialed from the mobile phone at MS Call step.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the [Stand-by] Result screen:

Press {Start} to begin a test.

The word surrounded by {} in the message field denotes the softkey.

Manual Test (MC-1x Mode)

Overview

Feature of Manual Test

- All test items are executed while the mobile phone and the Tester are connected by call control protocol.
- Measurement in the Talk/RF test step in the test flow is executed in a real-time.
- The following systems can be selected directly from the Manual Test screen. Required options are in parentheses.

  GSM (G00), GPRS (G00), EGPRS (G00, G03), W-CDMA (W00), HSDPA (W00, W06), cdma2000 - 1xEV-DO (C00, C01, C02)

Setting Manual Test in the Configuration Mode

- Loss:

  The path loss values for each band can be set on the [Configuration] screen to correct the RF attenuation between the mobile phone and the Tester. Refer to Actual Input/Output Level and Correction on page 4-19 for correction of input/output signal.
- Limits of measurement items:

  Each measurement item can be measured and analyzed with test limits set on the [Configuration: Test Condition (Limit)] screen.

RF Test with Manual Test

Table 5-10 describes measurement items of RF test. The limit for measurement items can be set on the [Configuration: Test Condition] screen. Refer to Configuration: Test Condition Screen on page 5-158.

Table 5-10 Manual Test: Measurement Items (MC-1x)

Input Field	Description
TX Power	Measures the transmission power of the mobile phone during connection. The measurement range is from -60 to +36 dBm.
Frequency Error	Measures a transmission frequency error of the mobile phone. The measurement range is ±10kHz.
Rho/Multi-code Rho	Measures the modulation accuracy (ρ) of transmission waveforms of the mobile phone. The measurement range is from 0.900 to 0.999.
Origin Offset	Measures the origin offset. The measurement range is from –50.0 to –20.0 dBc.
Time Offset	Measures the transmission timing error of the mobile phone. The measurement range is ±10 μsec.
FER/TDSO FER	Measures the frame error ratio of the mobile phone.
Max TX Power	Press the **Max & Min Power** softkey to measure the maximum transmission power of the mobile phone. The measurement range is from –60 to +36 dBm.
Min TX Power	Press the **Max & Min Power** softkey to measure the minimum transmission power of the mobile phone. The measurement range is from –60 to +36 dBm.
Code Domain Power	Measures the power of each code channel (code domain power) of the mobile phone.

NOTE

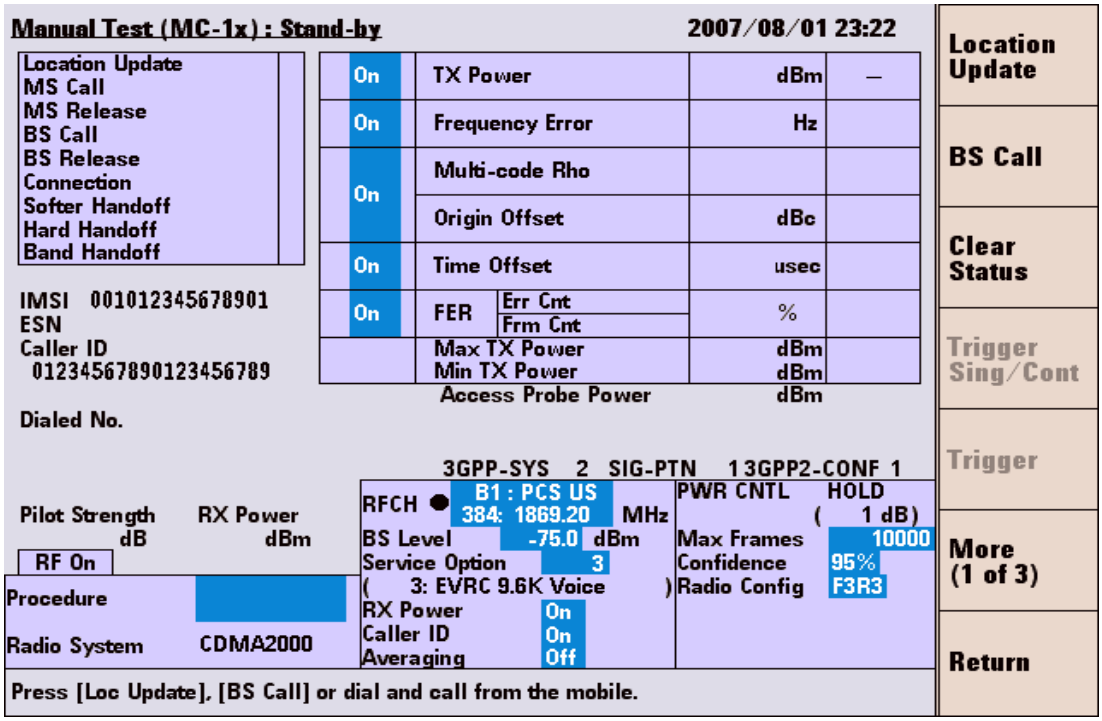
The default state is the last setting stored in the internal memory of the Tester before power off.

For numeric value entry, the changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Stand-by Screen

When the **Manual Test** softkey is pressed on the [Initial] screen, the [Manual Test: Stand-by] Screen (MC-1x) as Figure 5-28 is displayed.

Figure 5-28 [Manual Test: Stand-by] Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Location Update**: Executes the Location Update process in the Tester. When the softkey is pressed, the NID and the SID on the broadcast information are changed to the Rgstr NID and the Rgstr SID setting on the [Configuration: Test Condition] screen.
- **BS Call**: Executes BS Call.
- **Clear Status**: Clears Pass/Fail results in the test flow.
- **Trigger Sing/Cont**: Executes RF test. Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - The continuous measurement is immediately started during the Connection status when the trigger mode is set to `Cont`.

- The measurement is terminatedends when the trigger mode is changed from `Cont` to `Sing`.

- **Trigger**: Starts measurement during the Connection status. This softkey is inactivated in the stand-by status but activated in the connection status.
- **More (1 of 3)**: Displays the softkey menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **RF Output On/Off**: Selects the RF power output from `On` and `Off`. When it is set to `On`, the Tester outputs the BS level of the signal. When it is set to `OFF`, the Tester outputs less than –120 dBm of the signal..
- **System >>**: Displays the Softkey Menu 4 to select a system.
- **Code Power**: Displays the [Code Domain Power] measurement screen. This softkey displayed when the **Service Option** is set to 2, 9, 32, or 55 and the **Radio Config** is set to F3R3, F4R3 or F5R4.
- **More (2 of 3)**: Displays the Softkey Menu 3.

Softkey Menu 3

- **Debug Data > USB**: Stores the debug data into the USB memory device.
- **Call Drop Timer On/Off:** Sets Call Drop Timer to `On` or `Off`.
- **More (3 of 3)**: Displays the Softkey Menu 1.

Softkey Menu 4

- **GSM**: Changes the system to GSM. The G00 option is required.
- **GPRS**: Changes the system to `GPRS`. Installation for G00 Option is required.
- **EGPRS**: Changes the system to `EGPRS`. Installation for G00 Option and G03 Option is required.

- **W-CDMA**: Changes the system to W-CDMA. Installation for W00 Option is required.
- **HSDPA**: Changes the system to HSDPA. Installation for G06 Option is required.
- **CDMA2000>>**: Displays the Softkey Menu 5 to select the cdma2000 system.
- **Cancel**: Cancels selecting a system and returns to the Softkey Menu 2.

Softkey Menu 5

- **MC-1x**: This softkey is unavailable.
- **1xEV-DO**: Changes the system to the 1xEV-DO mode on the **CDMA Mode**. The C00, C01, and C02 options are required.
- **Cancel**: Cancels selecting the cdma2000 system and returns to the Softkey Menu 2.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-11 to execute a new test.

Table 5-11 Input Items in [Manual Test: Stand-by] Screen (MC-1x)

Input Field	Description
Measuring mode	Sets On (measure) or Off (not measure) for each test item group or measurement item. • TX Power • Frequency Error • Rho, Origin Offset or Multi-code Rho, Origin Offset • Time Offset • FER, TDSO FER
Procedure	Specify a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.

Table 5-11 Input Items in [Manual Test: Stand-by] Screen (MC-1x)

Input Field	Description
RFCH *	Specifies the band and channel number. This parameter can be changed when in the stand-by or Connection status. The allowable range of channel number for each band is as follows: • B0(Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1(PCS US): 0 to 1199CH • B3(Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4(PCS KR): 0 to 599CH • B6(IMT-2K): 0 to 1199CH Refer to Appendix B, Channel frequency and channel number for details.
BS Level *	Sets the RF output level of the Tester, ranging from `-110.0` to `-50.0` dBm in `0.1` dB steps. The default value is set on the [Configuration: Test Condition] screen.
Service Option	Specify the service options. The selectable service options are limited depending on the **Radio Config** setting. Changing **Radio Config** setting will lead the previously specified service option to be set. This parameter cannot be changed during connection status. The allowable types are as follows: 1: Normal Voice 2: 9.6k Data Loop Back 3: EVRC 9.6k Voice 9: 14.4k Data Loop Back 17: 14.4k Voice 32: TDSO 55: Data Loop Back 32768: 14.4k Voice • Setting the Service Option 32 will display the measurement item **TDSO FER**; selecting others will display **FER**. Refer to Table A-2, "Relation between Radio Config and Service Option," on page 20 for details.
RX Power	Sets `On` (measured) or `Off` (not measured) for Rx Power Measurement. This parameter can be set in Stand-by state and Connection State.
Caller ID	Sets Caller ID notification to `On` or `Off`. • `On`: Caller ID notified • `Off`: Caller ID not notified When setting the Caller ID notification to `ON`, the Tester notifies the Caller ID to the mobile phone at BS Call step.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Waveform Quality (Rho or multi-code Rho), Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power measurement. Set the average number of times to `2` to`99` or `Off`.

Table 5-11 Input Items in [Manual Test: Stand-by] Screen (MC-1x)

Input Field	Description
PWR CNTL*	Specifies the power control bit to control TX Power of the mobile phone. The allowable setting is as follows: Stand-by status • HOLD • CNT UP (Continuous up) • CNT DWN (Continuous down) Measuring (Connection) status • HOLD • UP • DOWN • CNT UP (Continuous up) • CNT DWN (Continuous down) This field cannot specify when the "Service Option" is set to 1, 3, 17 or 32768 (voice call is selected).
Max Frames*	Specify the number of frames to measure Frame Error Ratio. The allowable range is as follows: `25` to `10000000`
Confidence	Selects confidence level of the Frame Error Ratio Measurement. Select `95%` or `Off`.
Radio Config	Selects Radio Configuration. The allowable setting is as follows: • F1R1 (Forward 1, Reverse 1) • F2R2 (Forward 2, Reverse 2) • F3R3 (Forward 3, Reverse 3) • F4R3 (Forward 4, Reverse 3) • F5R4 (Forward 5, Reverse 4) When the F1R1 or F2R2 is selected, the waveform quality is displayed as **Rho**. When the others are selected, **Multi-code Rho** is displayed.
SCH Rate	Selects data rate of the forward supplemental Channel. This item is displayed only when the **Radio Config** is set to F3R3, F4R3 or F4R3 with the **Service Option** setting of 32. • Radio Config: Selects F3R3 9.6, 19.2, 38.4, 76.8, 153.6 kbps • Radio Config: Selects F4R3 9.6, 19.2, 38.4, 76.8, 153.6 kbps • Radio Config: Selects F5R4 14.4, 28.8, 57.6, 115.2, 230.4 kbps
SCH Encoder	Selects encoder type of the forward supplemental Channel. This item is displayed only when the **Radio Config** is set to F3R3, F4R3, or F5R4 with the **Service Option** setting of 32. • CONV (Convolutional) • TURB (Turbo) When SCH Rate is 9.6 kbps or 14.4 kbps, TURB cannot be selected.

Table 5-11 Input Items in [Manual Test: Stand-by] Screen (MC-1x)

Input Field	Description
SCH Level	Sets code level of the forward supplemental Channel. This item is displayed only when the **Radio Config** is set to F3R3, F4R3, or F5R4 with the **Service Option** of 32. The allowable range is as follows: –20.00 to –2.50 dB (in 0.25 dB steps)

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Table 5-12 lists the items that provide information from the mobile phone and the Tester.

Table 5-12 Mobile Phone Information in [Manual Test: Stand-by] Screen (MC-1x)

Item Information	Description
IMSI	Displays the International Mobile Subscriber Identity sent from the mobile phone, with maximum 15 digits.
ESN	Displays the international mobile station identity sent from the mobile phone, with maximum 8 digits.
Caller ID	Displays dialer number sent from the Tester at BS Call step. Maximum 32 digits, including arbitrary digits (0 to 9) and symbols (* and #) can be usable. This value can be changed only by using a remote control command.
Dialed No.	Displays the number dialed from the mobile phone at MS Call step.
Pilot Strength	Displays the pilot channel measured level at the mobile phone between –31.5 and 0.0 dB when the mobile phone receives the Measurement Report message.
Radio System	Displays **CDMA2000** on the lower left of the screen.
RX Power	Displays the pilot channel measured level at the mobile phone between –120 to –18 dBm when the mobile phone receives the Pilot Strength Measurement message.
Access Probe Power	Measures and displays the access probe power when receiving an access probe before connection. The display range is -60.0 to 36.0 dBm • Turning **Setting** off on the [Configuration: Test Condition] screen will disable the measurement and display.
3GPP-SYS	Displays the value for **3GPP System** that is set in the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value for **Signaling Pattern** that is set in the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value for **3GPP2-Config** that is set in the [Configuration: Test Condition] screen.

The **RF On** indicator is displayed at the screen lower left corner only when the RF signal from the Tester is present at the RF IN/OUT connector.

CDT Off is displayed on the lower left of the display only when the Call Drop Timer is set to `Off`.

Message Field

The following message is displayed in the message field on the [Stand-by] screen:

Press {Loc Update}, {BS Call} or dial and call from the mobile.

The word surrounded by {} in the message field denotes the softkey.

Description

Before beginning tests, press the **Location Update** softkey, turn the mobile phone on and wait until the Location Update step is change to **pass**. When the Location Update is passed, set to **pass**, **P** is displayed within the blue background in the Test Results field of the **Location Update** test.

After that, there are two ways to start the test.

Receive call of mobile phone (BS Call)

Press the **BS Call** softkey. The **BS Call** step is highlighted. Then, the following test result is displayed in the test result field of the **BS Call** step.

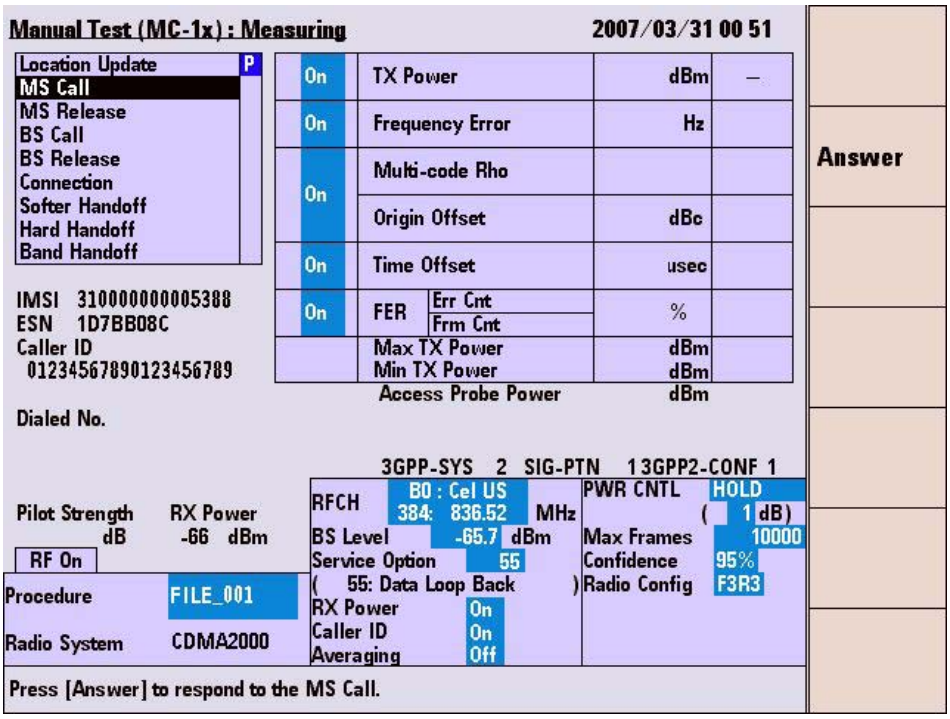
- **P**: Displayed on blue background when the call setup is executed properly and BS Call is passed.
- **F**: Displayed on red background when BS Call failed.

Originate call of mobile phone (MS Call)

Dial and press the **Off Hook** button on the mobile phone. The **MS Call** step is highlighted. Accepting a call request from the mobile-phone will switch to the mobile-phone call connection hold screen.

Connect Wait Timeout (set in **Connect Wait** field on the [Configuration: Test Condition] screen) or press the **Answer** softkey to restart the connection sequence.

Figure 5-29 [Manual Test: Measuring] MS Call Hold Screen (MC-1x)



The following test result is displayed on the test result field of the **MS Call** step.

- **P**: Displayed on blue background when a proper call setup is executed and MS Call is passed.
- **F**: Displayed on red background when MS Call is failed.

When one of above procedure is performed, the screen changes from [Stand-by] screen to [Measuring] screen and a test starts.

Connection Screen

When call connection between the mobile phone and the Tester is succeeded, a [Measuring] connection screen as Figure 5-30 or Figure 5-31 is displayed.

If the **Service Option** field is set to 2, 9, 32 or 55, and the trigger mode is set to `Cont`, continuous measurement of RF test starts when the [Measuring] connection screen is displayed.

Figure 5-30 [Manual Test: Measuring] BS Call Connection Screen (MC-1x)

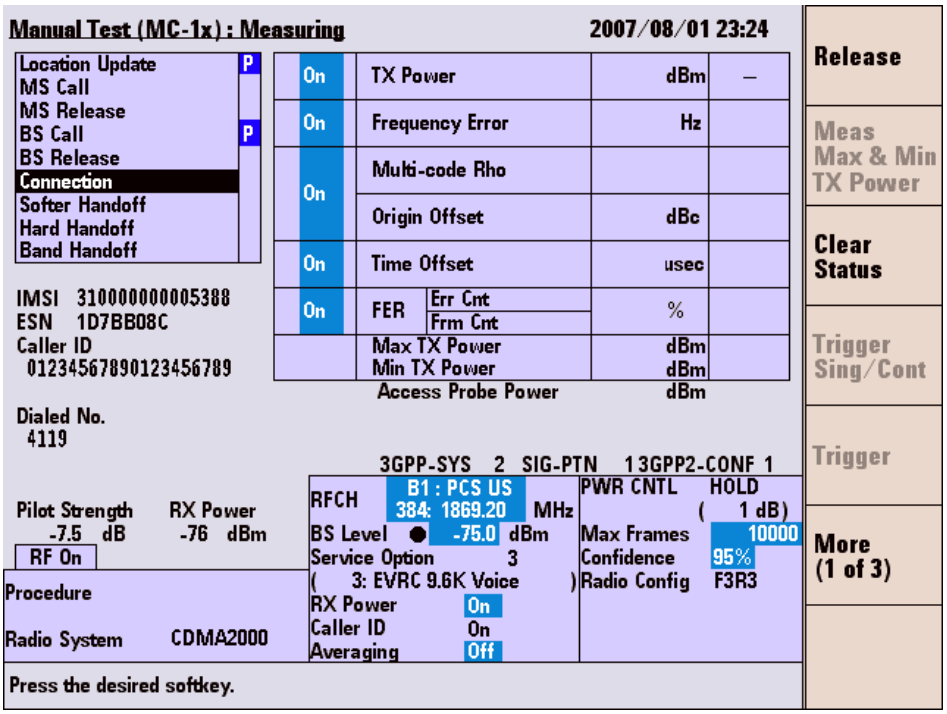
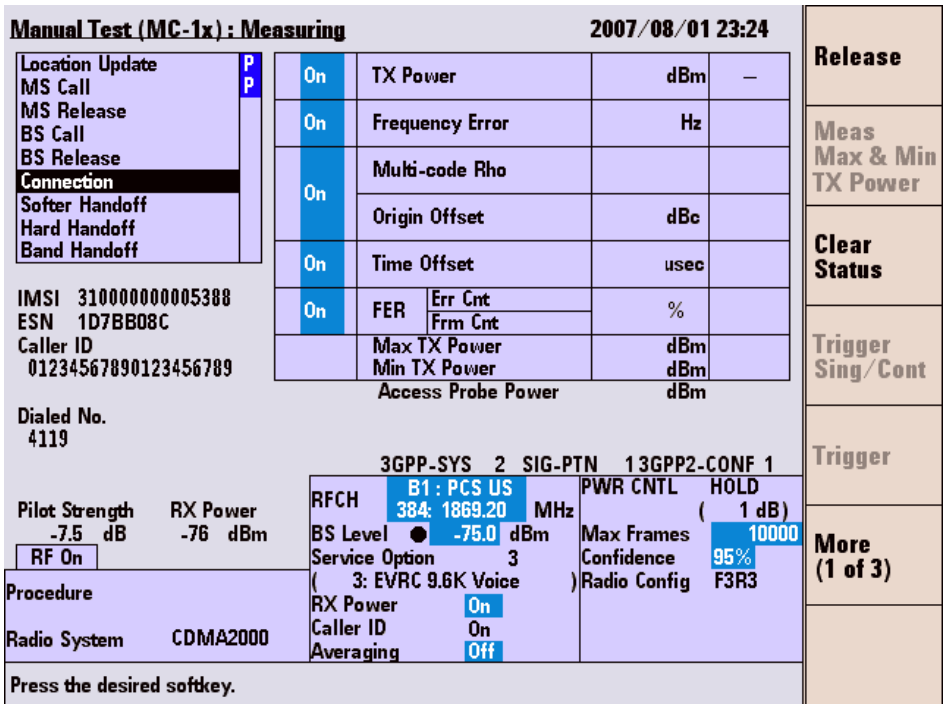


Figure 5-31 [Manual Test: Measuring] MS Call Connection Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Release**: Starts the BS release step.
- **Meas Max & Min TX Power**: Starts measuring the maximum and minimum transmission powers. This softkey is not available when the Service Option is set to `1`, `3`, `17`, or `32768`.
- **Clear Status**: Clears Pass/Fail results of the protocol test.
- **Trigger Sing/Cont**: Selects `Sing` (single measurement) or `Cont` (continuous measurement) as the trigger mode. This softkey is not available when the Service Option is set to `1`, `3`, `17`, or `32768`.
  - Selecting `Cont` as the trigger mode will immediately start the continuous measurement during the Connection status.
  - Changing the trigger mode from `Cont` to `Sing` will terminate the measurement.
- **Trigger**: Starts single measurement of the RF test when the trigger mode is set to **Sing** and the **Trigger** softkey is pressed. This softkey is not available when the Service Option is set to `1`, `3`, `17`, or `32768`.

- **More (1 of 3)**: Displays the Softkey Menu 2

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Softer Handoff**: Starts Softer handoff.
- **Code Power**: Displays the [Code Domain Power] measurement screen.
- **More (2 of 3)**: Displays the Softkey Menu 3.

Softkey Menu 3

- **Debug Data > USB**: This softkey is unavailable.
- **Call Drop Time On/Off**: Sets Call Drop Timer to `On` or `Off`.
- **Meas RX Power**: Starts the RX Power measurement. This softkey is unavailable when the measurement item of the RF Power is set to `Off` (not measured).
- **More (3 of 3)**: Returns to the Softkey Menu 1.

Screen Field

Set the input items required to execute tests, referring to the description shown in Table 5-13.

Table 5-13 Input Items on [Manual Test] Connection Screen (MC-1x)

Input Field	Description
Measuring mode	Sets On (measured) or Off (not measured) for each test item group or measurement item. • TX Power • Frequency Error • Rho, Origin Offset or Multi code Rho, Origin Offset • Time Offset • FER or TDSO FER When the **Radio Config** is set to F1R1 or F2R2, Rho and Origin Offset are displayed. When it is set to F3R3, F4R3 or F5R4, Multi-code Rho and Origin Offset are displayed. When the **Radio Config** is set to F3R3, F4R3 or F5R4, and the **Service Option** is set to 32, TDSO FER is displayed. The other settings, FER is displayed.

Table 5-13 Input Items on [Manual Test] Connection Screen (MC-1x)

Input Field	Description
RFCH *	Specifies the band and channel number. This parameter can be changed when the stand-by or Connection status. The allowable range of channel number for each band is as follows: • B0:Cel US 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1:PCS US 0 to 1199CH • B3:Cel JP 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4:PCS KR 0 to 599CH • B6:IMT-2K 0 to 1199CH • Setting RFCH in the Connection status starts handoff. Handoff is also available between bands. Refer to Appendix B General information on cdma2000 system for details.
RX Power	Sets `On` (measure) or `Off` (not measure) for RX Power measurement. When this parameter set to on during the Stand-by status and starts the MS call or the BS Call, measure the RX power once and the Tester display the result.
BS Level *	Sets the RF output level of the Tester, ranging from `-110.0` to `-18.0` dBm in `0.1` dB step. The default value is set on the [Configuration: Test Condition] screen.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Waveform Quality (Rho or multi-code Rho), Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power. Sets the averaging number from 2 to 99, or `Off`.
PWR CNTL *	Specifies the power control bit to control TX Power of the mobile phone. The allowable setting is as follows: HOLD: Sets to HOLD. UP: Increases the TX Power of the mobile phone to the specified value. (Not available in the Stand-by status.) DOWN: Decreases the TX Power of the mobile phone to the specified value. (Not available in the Stand-by status.) CNT UP: Sets to **Continuous Up**. CNT DWN: Sets to **Continuous Down**. This softkey is not available when the **Service Option** is set to `1`, `3`, `17` or `32768`.
Max Frames *	Specify the number of frames to measure Frame Error Ratio. The allowable range is as follows: `25` to `10000000`.
Confidence	Selects confidence level of the Frame Error Ratio Measurement. Select `95%` or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information from the mobile phone as Table 5-14 is displayed on the left side of the screen.

Table 5-14 Mobile Phone Information on [Manual Test: Measuring] Screen (MC-1x)

Item Information	Description
IMSI	Displays the International Mobile Subscriber Identity sent from the mobile phone, with Max. 15 digits.
ESN	Displays the international mobile station identity sent from the mobile phone, with Max. 8 digits. This number cannot be displayed when the state is Stand-by.
Caller ID	Displays the dialer number sent from the Tester at BS Call step. Maximum 32 digits, including arbitrary digits (0 to 9) and symbols (* and #) can be usable. This value can be changed only by using a remote control command.
Dialed No.	During Connection state, the DTMF tone number is added to the right side of the Dialed No. When the number reaches over 32 digits, the left end number is deleted.
Pilot Strength	Displays the pilot channel measured level at the mobile phone between –31.5 and 0.0 dB when the mobile phone receives the Measurement Report message.
RX Power	Displays the pilot channel measured level at the mobile phone between –120 to –18 dBm when the mobile phone receives the Pilot Strength Measurement message. This is not measured and not displayed when the RX Power is set to Off.
Access Probe Power	Measures and displays the access probe TX power of the mobile phone. The display range is from –60 to 36.0 dBm. This is not measured and not displayed when the Access Probe Meas field on the [Configuration: Test Condition] screen is set to OFF.
Procedure	Displays the file name of the parameter file in current use.
Radio System	Displays **CDMA2000** on the lower left of the screen.
Service Option	Displays the selected service option.
Radio Config	Displays the Radio Configuration setting.
SCH Rate	Displays the specified SCH rate. This item is displayed only when **Radio Config** is set to F3R3, F4R3 or F5R4.
SCH Encoder	Displays the specified SCH encode type. This item is displayed only when **Radio Config** is set to F3R3, F4R3 or F5R4.
SCH Level	Displays the specified SCH level. This item is displayed only when **Radio Config** is set to F3R3, F4R3 or F5R4.
3GPP-SYS	Displays the value for **3GPP System** that is set in the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value for **Signaling Pattern** that is set in the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value for **3GPP2-Config** that is set in the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the Connection screens:

Press the desired softkey.

Code Domain Power Measurement Screen

Code Domain Power Measurement simultaneously measures all test items regardless of whether the result is **pass** or **fail**.

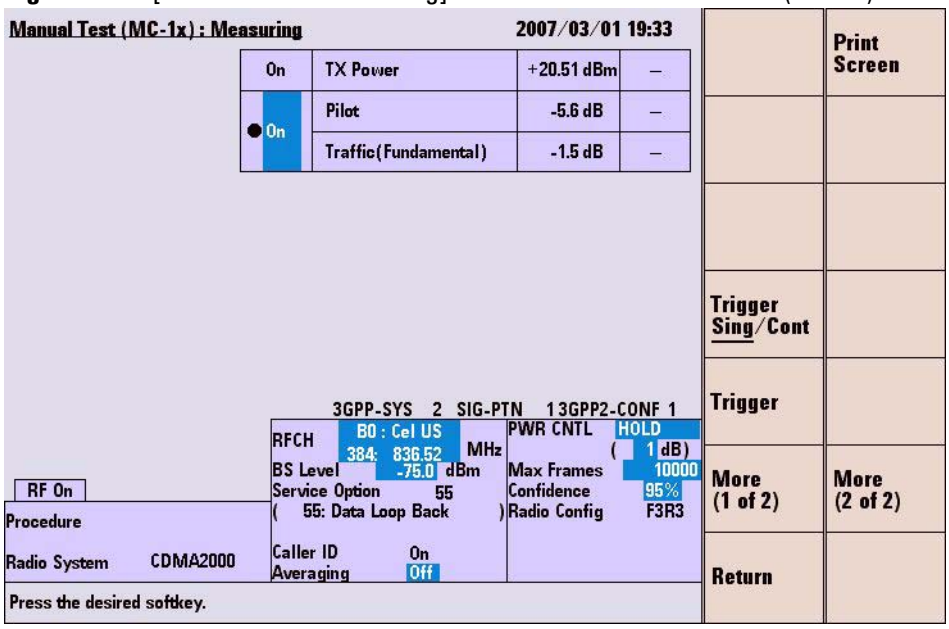
Holding down the **More (1 of 3)** and **Code Power** softkeys in the connection status (refer to the [Measuring] Connection screen in Connection Screen) will display [Measuring] Code Power Screen as Figure 5-32 to enable you to measure the code power.

Supplemental 1 and 2 in Code Power Measurement are available only when Radio Conf is set to `3`, `4`, or `5` with Service Option set to `32` (TDS0).

Release is invalid on this screen.

Select `Sing` or `Cont` as the trigger mode to start measurement.

Figure 5-32 [Manual Test: Measuring] Code Domain Power Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Trigger Sing/Cont**: Measures the Code Domain Power. Select `Sing` (single measurement) or `Cont` (continuous measurement) as the trigger mode. This item is unavailable on this screen.
  - Selecting `Cont` as the trigger mode will immediately start the continuous measurement.
  - Changing the trigger mode from `Cont` to `Sing` will end the measurement.
- **Trigger**: Measures the Code Domain Power. Selecting `Sing` as the trigger mode will start the measurement after pressed.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Connection] screen.

Softkey Menu 2

- **Print Screen**: Prints the hard-copy of the screen or stores the screen image in the USB memory, according to the **Printer** field on the [Configuration] screen.
- **More (1 of 2)**: Returns to the Softkey Menu 1.

Screen Field

Set the input items required to execute tests, referring to the description shown in Table 5-15.

Table 5-15 Input Items on [Manual Test: Measuring] Code Domain Power Measurement Screen (MC-1x)

Input Field	Description
Measuring mode	Sets `On` (measured) or `Off` (not measured) for each test item group or measurement item. • TX Power • Pilot, Traffic (Fundamental), Max Inactive Channel TX Power Measurement is unconditionally conducted at execution of Code Power Measurement, which indicates that Pilot/Traffic (Fundamental) Measurement is set to `On`. • If Pilot/Traffic (Fundamental) Measurement is set to `On`, TX Power Measurement is also set to `On`. If it is set to `Off`, TX Power Measurement is also set to `Off`.

Table 5-15 Input Items on [Manual Test: Measuring] Code Domain Power Measurement Screen (MC-1x)

Input Field	Description
RFCH *	Specify the band and channel number. Available in the stand-by or Connection status. The allowable range for each band is as follows: • B0:Cel US 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1:PCS US 0 to 1199CH • B3:Cel JP 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4:PCS KR 0 to 599CH • B6:IMT-2K 0 to 1199CH • Setting RFCH in the Connection status will start handoff. Handoff is also available between bands. Refer to Appendix B General information on cdma2000 system for details.
BS Level *	Sets the RF output level of the Tester, ranging from `-115.0` to `-18.0` dBm in `0.1` dB step. The default value is set on the [Configuration: Test Condition] screen.
RX Power	Sets `On` (measure) or `Off` (not measure) for RX Power measurement. When this parameter set to on during the Stand-by status and starts the MS call or the BS Call, measure the RX power once and the Tester display the result.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Waveform Quality (Rho or multi-code Rho), Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power measurement. Sets the averaging number from `2` to `99`, or `Off`.
PWR CNTL *	Specify one of the elements of the power control level defined by the radio system. HOLD| UP| DOWN| CNT UP|CNT DWN • HOLD: Set to HOLD. • UP: Set to UP by the specified value. (Not available in the stand-by status.) • DOWN: Set to DOWN by the specified value. (Not available in the stand-by status.) • CNT UP: Set to Continuous UP. • CNT DWN: Set to Continuous DOWN. This softkey is not available when the voice call (Service Option) is set to 1, 3, 17, or 32768.
Max Frames *	Specify the number of frames to measure Frame Error Ratio. The allowable range is as follows: `25` to `10000000`
Confidence	Selects confidence level of the Frame Error Ratio measurement. Select `95%` or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information from the mobile phone and the Tester as Table 5-16 is displayed on the screen field.

Table 5-16 Mobile Phone Information on [Manual Test: Measuring] Code Domain Power Screen (MC-1x)

Item Information	Description
Caller ID	Display the Caller ID notification setting. When the Caller ID notification is set to ON, the Tester notifies the Caller ID to the mobile phone at BS Call step.
Procedure	Displays the file name of the parameter file in current use.
Radio System	Displays **CDMA2000** on the lower left of the screen.
Service Option	Displays the selected service option.
Radio Config	Displays Radio Configuration setting.
SCH Rate	Displays the specified SCH rate. This item is displayed only when **Radio Config** is set to F3R3, F4R3 or F5R4.
SCH Encoder	Displays the specified SCH encode type. This item is displayed only when **Radio Config** is set to F3R3, F4R3 or F5R4.
SCH Level	Displays the specified SCH level. This item is displayed only when **Radio Config** is set to F3R3, F4R3 or F5R4.
3GPP-SYS	Displays the value for **3GPP System** that is set in the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value for **Signaling Pattern** that is set in the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value for **3GPP2-Config** that is set in the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the [Measuring] Code Domain Power screen:

Press the desired softkey.

Measuring Screen

In connection state, RF test can be executed to measure the mobile phone performance before the call is released. When the **Service Option** is set to `1`, `3`, `17`, or `32768` (voice call is selected), the RF test cannot be executed..

Figure 5-33 [Manual Test: Measuring] BS Call Screen (MC-1x)

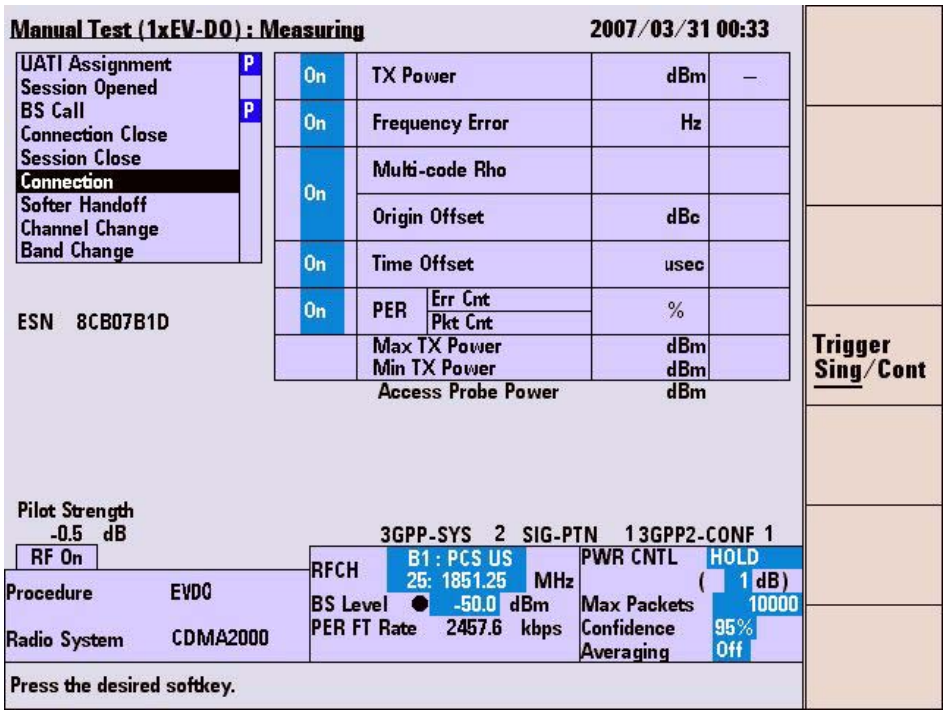
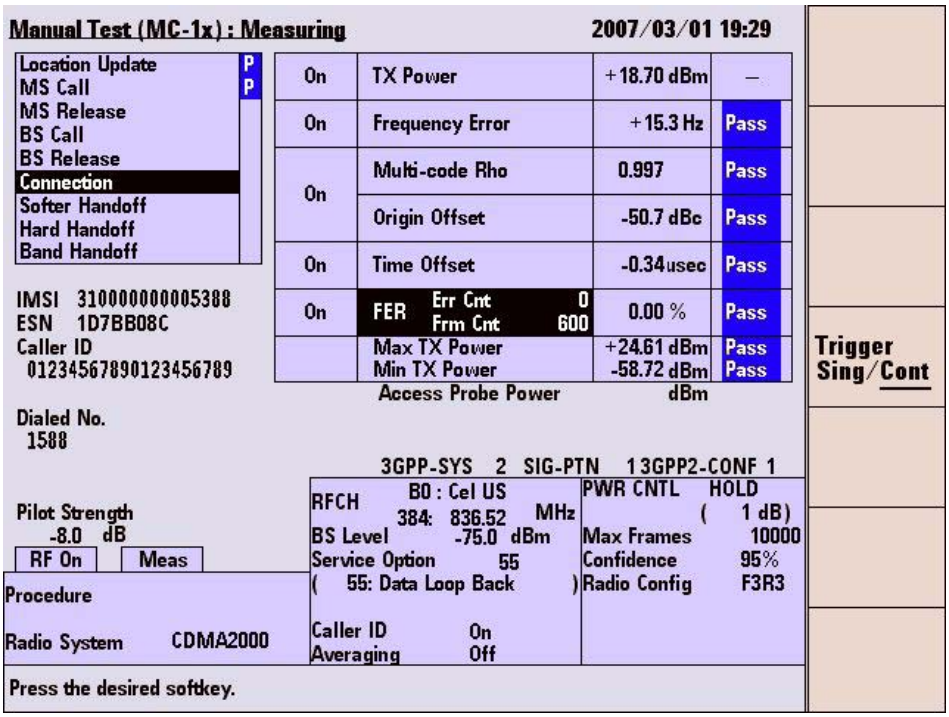


Figure 5-34 [Manual Test: Measuring] MS Call Screen (MC-1x)



Softkey Menu Field

Softkey Menu

- **Trigger Sing/Cont**: Starts the RF test. Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - Selecting `Cont` as the trigger mode will immediately start the continuous measurement.
  - Changing the trigger mode from `Cont` to `Sing` will terminate the measurement.

Message Field

The following message is displayed in the screen field on [Measuring] screens:

Processing...

Result Screen

When the measurement is completed, a [Measuring] measurement result display screen showing the measurement results is displayed.

- To end the measurement by BS release, press the **Release** softkey to disconnect from the Tester.
- To end the measurement by MS release, press the `On Hook` button on the mobile phone or the **Release** softkey to disconnect from the mobile phone.

When disconnecting the call is completed, a [Stand-by] measurement result display screen as Figure 5-35 or Figure 5-36 is displayed.

- `Pass`: Displayed on the blue background when the measurement is passed.
- `Fail`: Displayed on the red background when the measurement is failed.

Figure 5-35 [Manual Test: Stand-by] BS Call Result Screen (MC-1x)

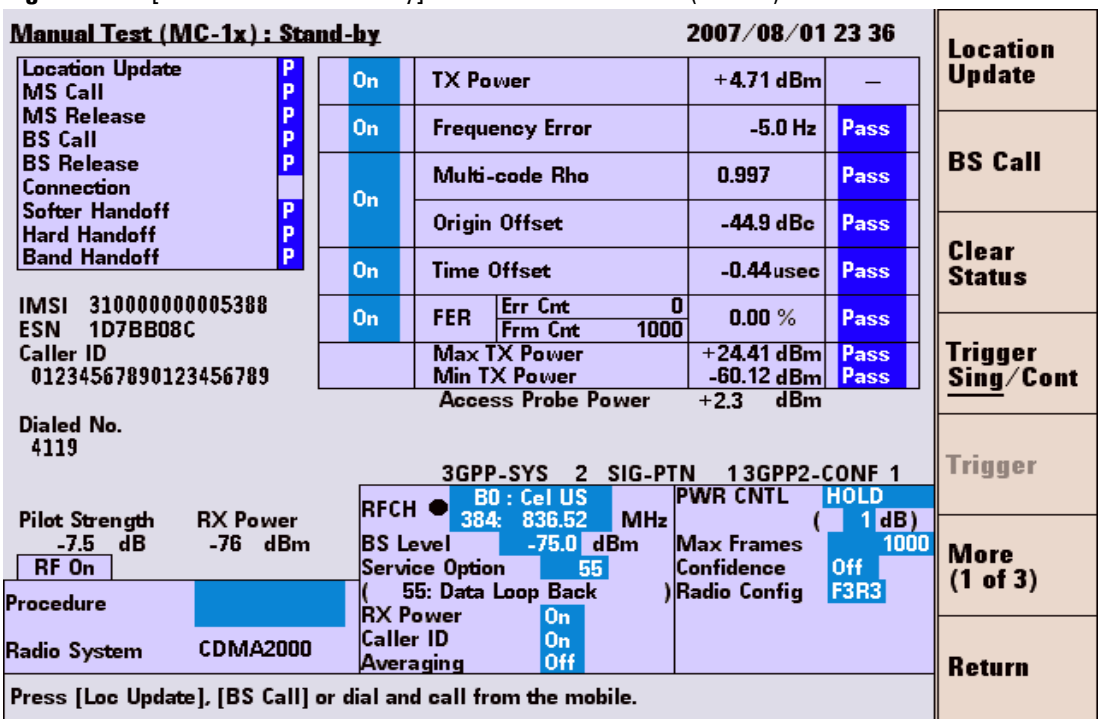
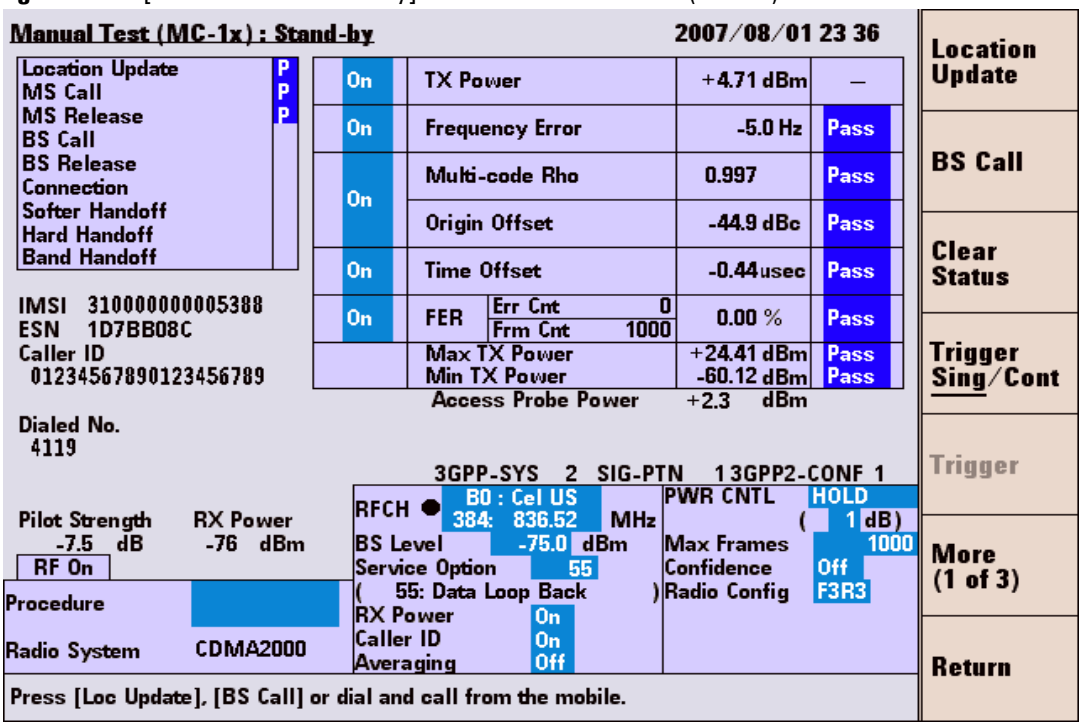


Figure 5-36 [Manual Test: Stand-by] MS Call Result Screen (MC-1x)



Softkey Menu Field

Softkey Menu 1

- **Location Update**: Executes the Location Update process in the Tester. When the softkey is pressed, the NID and the SID on the broadcast information are changed to the Rgstr NID and the Rgstr SID setting on the [Configuration: Test Condition] screen.
- **BS Call**: Executes BS Call.
- **Clear Status**: Clears Pass/Fail results at signaling steps in the test flow.
- **Trigger Sing/Cont**: Executes RF test. Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - Selecting `Cont` as the trigger mode will immediately start the continuous measurement.
  - Changing the trigger mode from `Cont` to `Sing` will end the measurement.

- **Trigger**: Starts measurement in the Connection status. This softkey is inactivated in the stand-by status but activated in the Connection status.
- **More (1 of 3)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **RF Output On/Off**: Selects the RF power output from `On` and `Off`. When it is set to `On`, the Tester outputs the BS level of the signal. When it is set to `OFF`, the Tester outputs less than –120 dBm of the signal.
- **System >>**: Displays the Softkey Menu 4 to select system. Pressing this softkey displays each mode of the installed options.
- **Code Power**: Displays the [Code Domain Power] measurement screen. This softkey is displayed when the **Service Option** is set to 2, 9, 32 or 55 and the **Radio Config** is set to F3R3, F4R3 or F5R4.
- **More (2 of 3)**: Displays the Softkey Menu 3.

Softkey Menu 3

- **Debug Data > USB**: Stores the debug data into the USB memory device.
- **Call Drop Timer On/Off**: Sets Call Drop Timer to `On` or `Off`.
- **More (3 of 3)**: Displays the Softkey Menu 1.

Softkey Menu 4

- **GSM**: Changes the system to GSM. The G00 option is required.
- **GPRS**: Changes the system to `GPRS`. Installation for G00 Option is required.
- **EGPRS**: Changes the system to `EGPRS`. Installation for G00 Option and G03 Option is required.
- **W-CDMA**: Changes the system to `W-CDMA`. Installation for W00 Option is required.

- **HSDPA**: Changes the system to HSDPA. The W00 and W06 options are required.
- **CDMA2000>>**: Displays the Softkey Menu 5 to select the cdma2000 system.
- **Cancel**: Cancels selecting a system and returns to the Softkey Menu 2.

Softkey Menu 5

- **MC-1x**: This softkey is unavailable.
- **1xEV-DO**: Changes the system to the 1xEV-DO mode on the **CDMA Mode**. The C00, C01 and C02 options are required.
- **Cancel**: Cancels selecting the display mode and returns to the Softkey Menu 2.

Screen Field

The input fields and information from the mobile phone are displayed in the screen field. Refer to Table 5-11, “Input Items in [Manual Test: Stand-by] Screen (MC-1x),” on page 55 and Table 5-14, “Mobile Phone Information on [Manual Test: Measuring] Screen (MC-1x),” on page 65. The input field in the screen field can be changed for a new test.

Automatic Test (1xEV-DO Mode)

This section explains how to test a mobile phone by Automatic Test: 1xEV-D0 mode.

NOTE Install the C02 option to use the test function in the 1xEV-D0 mode.

Overview

Feature of Automatic Test

- Pass or Fail test results in the test flow and measurement items are automatically obtained.
- This function executes RF test changing frequencies up to six channels automatically. Combining Sequence 1 and Sequence 2 enable measurement up to 12 channels in one test.

Setting for Automatic Test in Configuration Mode

- Parameters:

  The parameters used in Automatic Test are set on the [Configuration: Test Sequence] and [Configuration: Test Condition] screens.

- Loss:

  The path loss values for each band can be set on the [Configuration: Test Condition (Loss)] screen to correct the RF attenuation between the mobile phone and the Tester. Refer to Actual Input/Output Level and Correction for correction of input/output signal.

- Tests Limits:

  The test limits for each test can be defined on the [Configuration: Test Condition (Limit)] screen. The test result (pass or fail) for each test is automatically judged by using the predefined test limits.

- ATT In/Out:

  The path loss values for each traffic channel can be set on the [Configuration: Test Sequence] screen to correct the RF tests results at each traffic channel in each band.

- Sequence:

  Up to two test sequences can be set on the [Configuration: Test Sequence] screen.

RF Test in Automatic Test

Table 5-17 shows the measurement items of the RF test. For the judgment criteria of measurement items, refer to Configuration: Test Condition Screen.

Table 5-17 explains the measurement items for Automatic Test. The result (pass or fail) of each measurement item is set on the [Configuration: Test Condition] screen.

Table 5-17 Measurement Items for Automatic Test (1xEV-DO)

Measurement Item	Description
Access Probe Power	Measures and displays the transmission power of the access probe from the mobile phone..
ILP (Down)	Measures the transmission power difference of the mobile phone when the Tester controls the transmission power of the mobile phone down to 10 dB.
ILP (Up)	Measures the transmission power difference of the mobile phone when the Tester Control the transmission power of the mobile phone up to 10 dB.
Max TX Power	Measures the maximum transmission power of the mobile phone.
Min TX Power	Measures the minimum transmission power of the mobile phone.
Frequency Error	Measures a transmission frequency error of the mobile phone.
Multi-code Rho	Measures the modulation accuracy (ρ) of transmission waveforms of the mobile phone.
Time Offset	Measures a transmission timing error of the mobile phone.
Sensitivity/PER1, Sensitivity/PER2 Sensitivity/PER3	Measures the packet error rate. **Sensitivity/PER3** is displayed in the RF Test item only when the 3GPP2-CONF is set to 3 or 4 (ReleaseA).

NOTE

A changing magnification softkey to input numerical values will be enabled. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Default settings for the Tester at the time when the power is turned on represent the settings that were set last time the power was turned off.

Stand-by Screen

When the **Automatic Test** is pressed on the [Initial] screen, the [Auto Test: Stand-by] Simplified Screen (1xEV-DO) is displayed as shown in Figure 5-37.

Then, any of the [Automatic Test: Stand-by] Simplified Screen (1xEV-DO) (Figure 5-37), the [Automatic Test: Stand-by] Detailed Screen (1xEV-DO) (Figure 5-38), or the [Automatic Test: Stand-by] Value Screen (Figure 5-39) is displayed according to the setting of the **Simple**, the **Detail** and the **Value** softkey. (**Sensitivity/PER3** is displayed in the RF Test item only when the **3GPP2-CONF** is set to 3 or 4 (ReleaseA). **Sensitivity/PER3** is not displayed in the RF Test item and is not measured when the **3GPP2-CONF** is set to 1 or 2 (Release0).)

Figure 5-37 [Automatic Test: Stand-by] Simplified Screen (1xEV-DO)

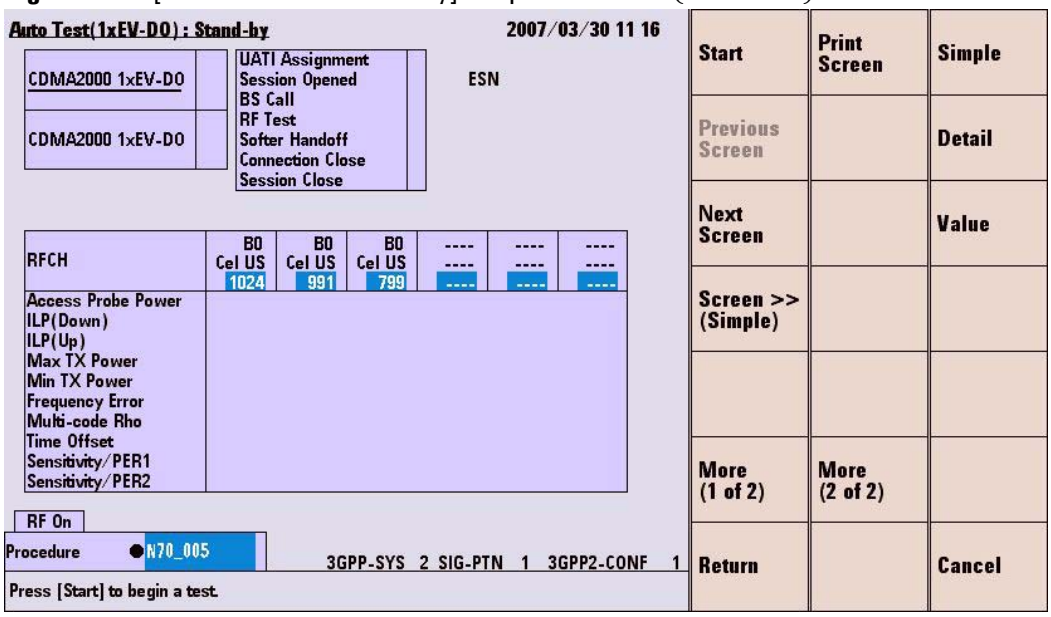


Figure 5-38 [Automatic Test: Stand-by] Detailed Screen (1xEV-DO)

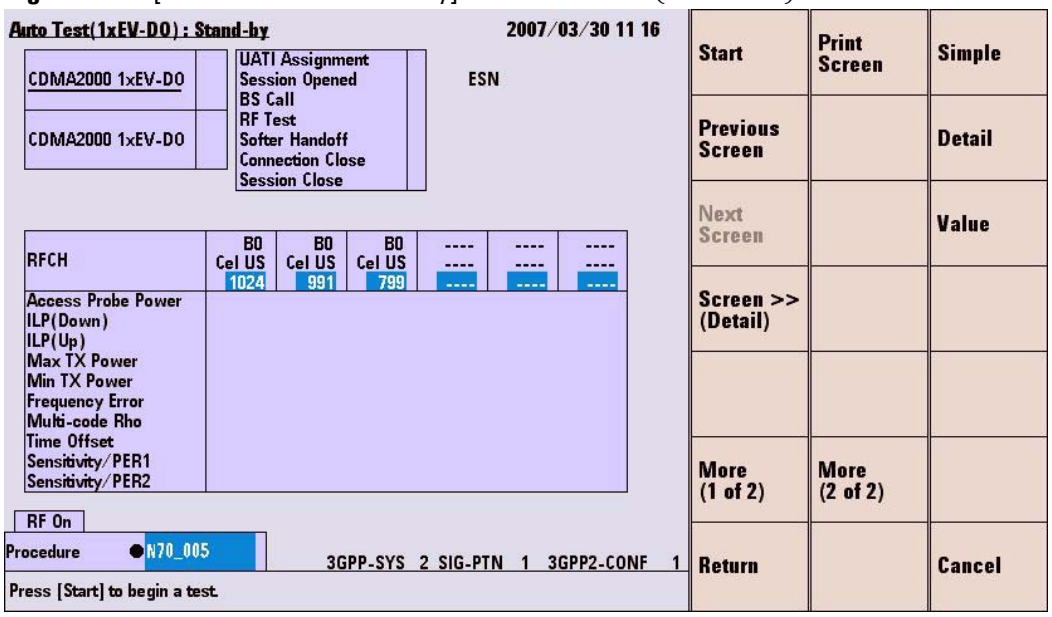
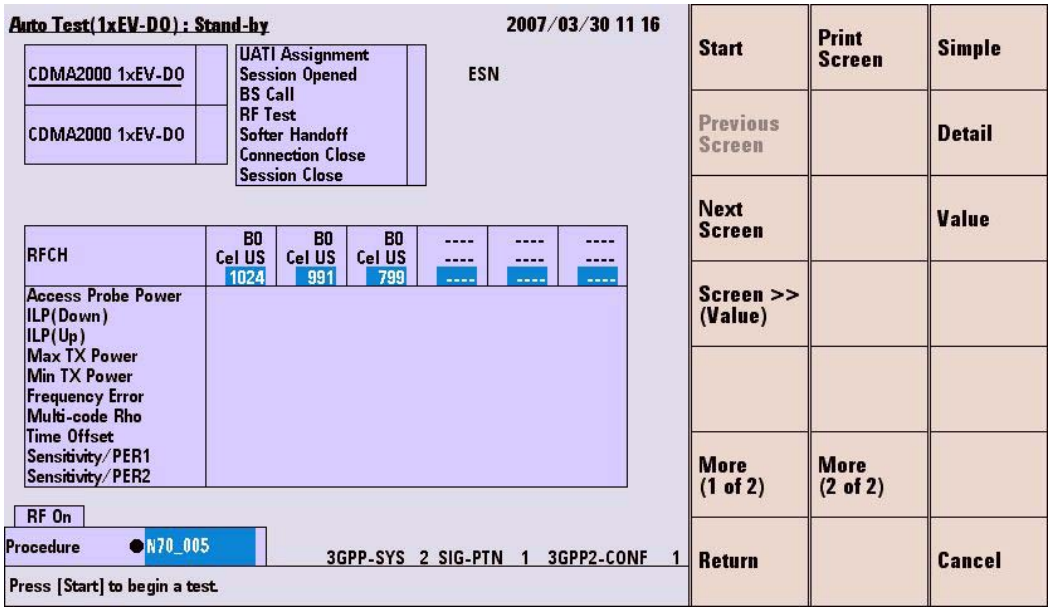


Figure 5-39 [Automatic Test: Stand-by] Value Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu 1

- **Start**: Starts testing the mobile phone by the Automatic Test.
- **Previous Screen**: Displays the previous sequence screen. This softkey is inactive when the Sequence 1 screen is displayed.

- **Next Screen**: Displays the next sequence screen. This softkey is inactive when Sequence 2 is set to `Off` or the Sequence 2 screen is displayed.
- **Screen>>**: Displays the Softkey Menu 3 containing the softkeys to select the display mode.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Softkey Menu 3

- **Simple**: Displays a Pass or Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass or Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels selecting the display mode and returns to the softkey menu 1.

Screen Fields

The input fields of parameters except procedure are protected if the **Panel Key** is set to `Lock` on the [Configuration] screen.

Set the input fields in the screen field according to the following description of Table 5-18 to execute a new test.

Table 5-18 Input Items on [Automatic Test: Stand-by] Screen (1xEV-DO)

Input Field	Description
Procedure	Specify a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.
RFCH *	Specify the band and channel number. This parameter can be changed when the stand-by status. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH • ----: Skip. Refer to Appendix B General information on cdma2000 system for details.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information from the mobile phone as Table 5-19 is displayed in the screen field.

Table 5-19 Mobile Phone Information on [Automatic Test: Stand-by] Screen (1xEV-DO)

Item Information	Description
ESN	Displays the Electronic Serial Number sent from the mobile phone, with Max. 8 digits. This number cannot be displayed when the status is Stand-by.
3GPP-SYS	Displays the value of the **3GPP System** that is set in the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set in the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set in the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the [Stand-by] screen:

Press {Start} to begin a test.

The word surrounded by {} in the message field denotes the softkey.

Measuring Screen

When the **Start** softkey is pressed on the [Automatic Test: Stand-by] screen, a [Automatic Test: Measuring] screen is displayed and then a test starts.

The status of sequences is displayed on the upper left corner of the screen. The sequence under test execution is underlined.

One of the test flow steps is highlighted to show which step is currently being tested. While the RF Test step is highlighted, each of the measurement items is highlighted sequentially to obtain a measurement result.

The test result of sequences and signaling steps are shown as follows:

- **P**: Displayed on blue background when the test is passed.
- **F**: Displayed on red background when the test is failed.

During test, any of the [Automatic Test: Measuring] Simplified Screen (1xEV-DO) (Figure 5-40), the [Automatic Test: Measuring] Detailed Screen (1xEV-DO) (Figure 5-41), or the [Automatic Test: Measuring] Value Screen (1xEV-DO) (Figure 5-42) is displayed, according to the setting of the **Simple**, the **Detail** or the **Value** softkey.

Figure 5-40 [Automatic Test: Measuring] Simplified Screen (1xEV-DO)

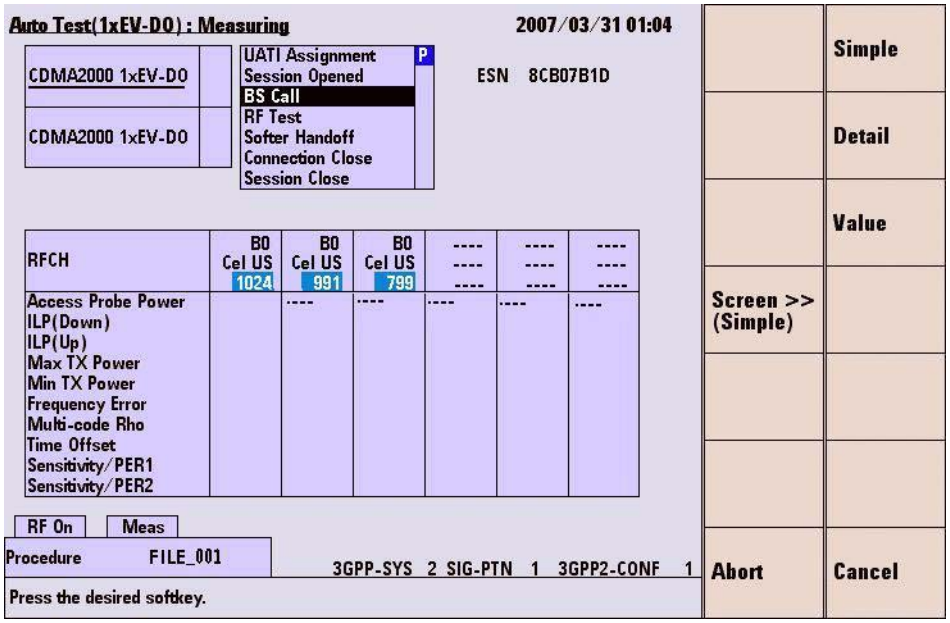


Figure 5-41 [Automatic Test: Measuring] Detailed Screen (1xEV-DO)

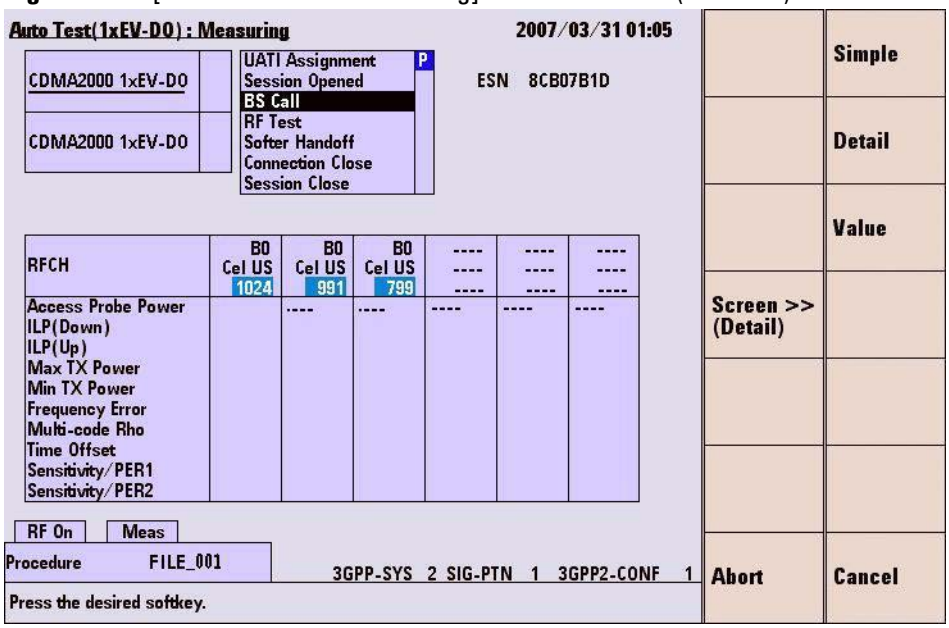
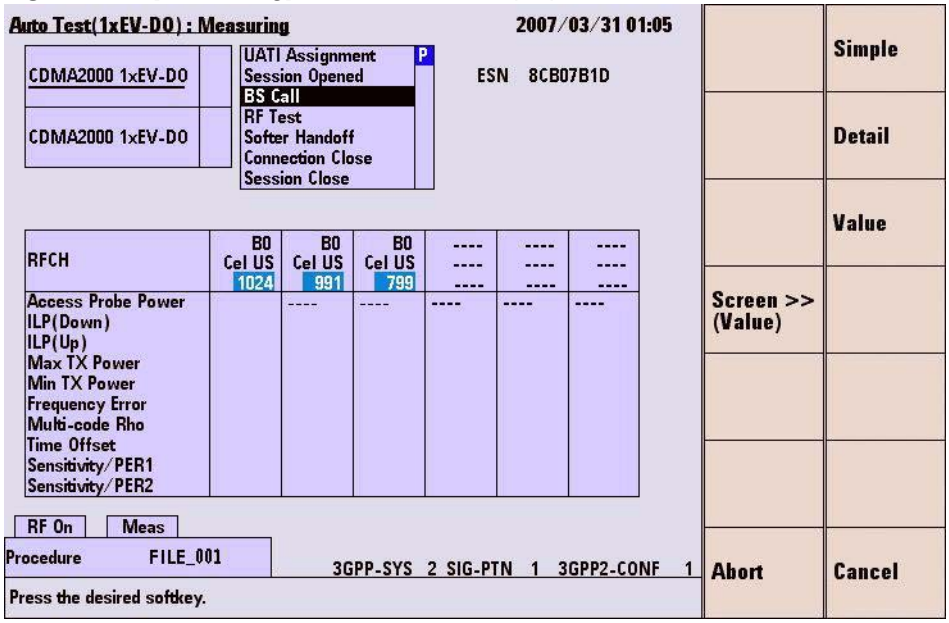


Figure 5-42 [Measuring] Numeric Value Display Screen



Softkey Menu Field

Softkey Menu 1

- **Screen>>**: Displays the Softkey Menu 2 containing the softkeys to select the display mode.
- **Abort**: Aborts the measurement and returns to the [Stand-by] screen.

Softkey Menu 2

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the Softkey Menu 1.

Screen Field

The information from the mobile phone as Table 5-20 is displayed in the screen field.

Table 5-20 Mobile Phone Information on [Automatic Test: Measuring] Screen (1xEV-DO)

Item Information	Description
ESN	Displays the Electronic Serial Number sent from the mobile phone, with Max. 8 digits. • Displayed when information can be acquired from the mobile phone.
3GPP-SYS	Displays the value for **3GPP System** that is set in the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value for **Signaling Pattern** that is set in the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value for **3GPP2-Config** that is set in the [Configuration: Test Condition] screen.

Message Field

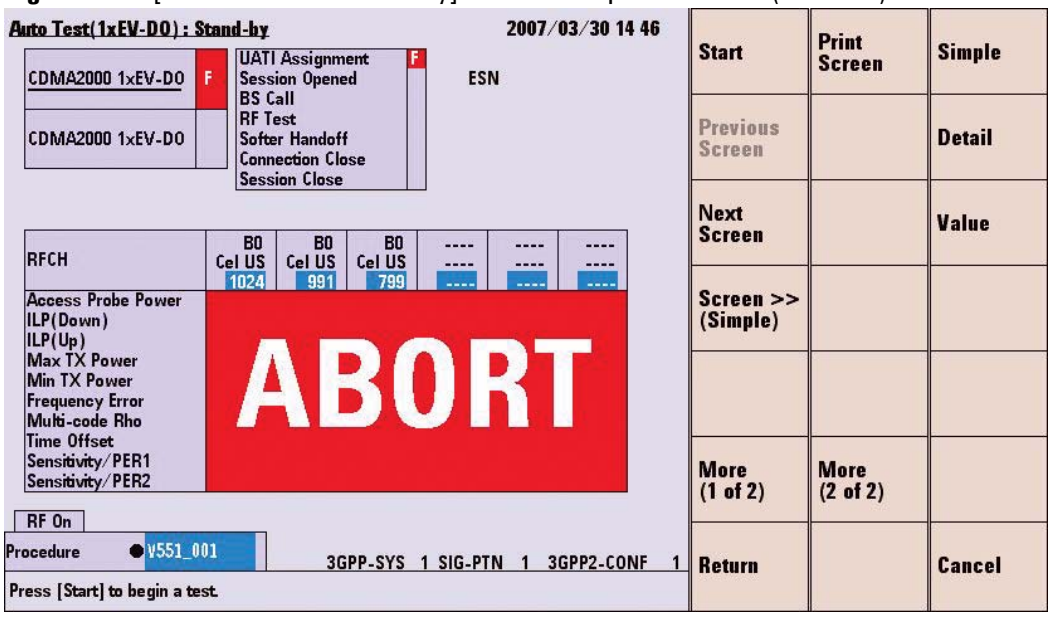
The following message is displayed on [Measuring] screen:

Press the desired softkey.

Aborted screen

When the **Abort** softkey is pressed, the measurement is aborted. Any of the [Stand-by] Simple Display Screen for Abort (Figure 5-43), [Stand-by] Detail Display Screen for Abort, or [Stand-by] Numeric Value Display Screen for Abort depending on the previous setting of the **Simple**, the **Detail** or the **Value** softkey. Figure 5-43 is a screen with the **Simple** softkey setting.

Figure 5-43 [Automatic Test: Stand-by] Aborted Simplified Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu 1

- **Start**: Starts testing the mobile phone by the Automatic Test.
- **Previous Screen**: Displays the previous sequence screen. This softkey is inactive when the Sequence 1 screen is displayed.
- **Next Screen**: Displays the next sequence screen. This softkey is inactive when Sequence 2 is set to `Off` or the Sequence 2 screen is displayed.
- **Screen>>**: Displays the Softkey Menu 3 containing the softkeys to select the display mode.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Softkey Menu 3

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the Softkey Menu 1.

Screen Field

The input fields and information from the mobile phone are displayed in the screen field. Refer to Table 5-18, “Input Items on [Automatic Test: Stand-by] Screen (1xEV-DO),” on page 82 and Table 5-19, “Mobile Phone Information on [Automatic Test: Stand-by] Screen (1xEV-DO),” on page 82. The input field in the screen field can be changed for a new test.

Message Field

The following message is displayed in the message field on the [abort] screen:

Press {Start} to begin a test.

The word surrounded by {} in the message field denotes the softkey.

Description

Detailed measurement results up to the aborted operation can be obtained.

The status of the Tester is returned to Stand-by.

The status of the mobile phone is not ensured; therefore, the mobile phone power-on process is required for a new test.

Sequence 2 Screen

When Sequence 2 is set on the [Configuration: Test Sequence] screen in the Configuration mode, the test for Sequence 2 start after completion of Sequence 1 last test.

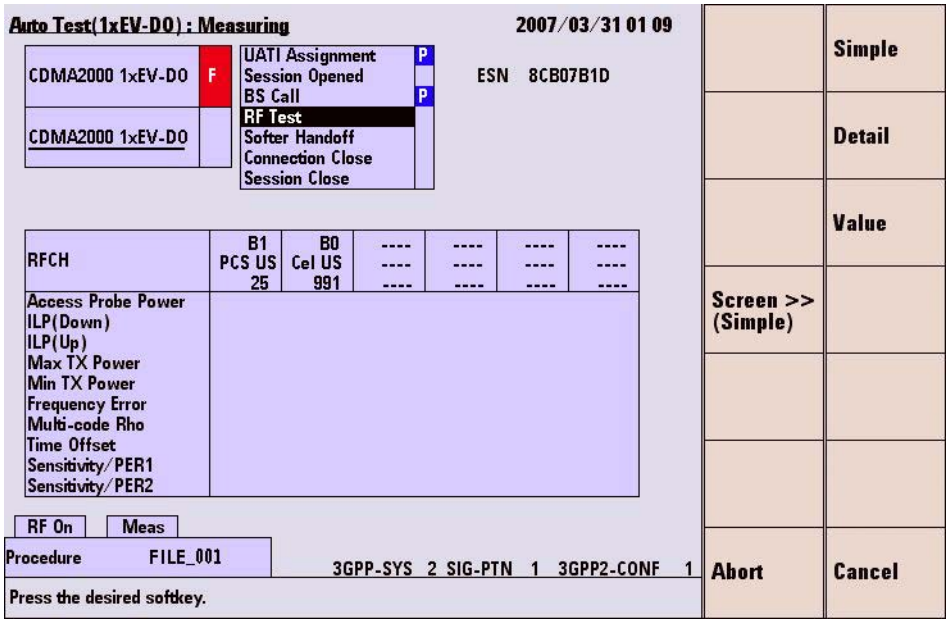
When Sequence 2 starts, the [Automatic Test: Measuring] Sequence 2 Screen (1xEV-DO) as Figure 5-44 is displayed.

The status of the sequences is shown on the upper left screen. The sequence in processing (Sequence 2 now) is underlined.

Test results of sequences are shown as follows:

- **P**: Displayed on blue background when the test is passed.
- **F**: Displayed on red background when the test is failed.

Figure 5-44 [Automatic Test: Measuring] Sequence 2 Screen (1xEV-DO)



Softkey Menu 1

- **Screen>>**: Displays the softkey menu 2 containing the softkeys to select the display mode.
- **Abort**: Aborts the measurement and returns to the [Stand-by] screen.

Softkey Menu 2

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the Softkey Menu 1.

Result Screen

When all tests in preset sequences are completed, measurement results are displayed on the [Stand-by] Result screen.

The results are displayed on the [Automatic Test: Stand-by] Result Simplified Screen (1xEV-DO) (Figure 5-45), the [Automatic Test: Stand-by] Result Detailed Screen (1xEV-DO) (Figure 5-46) or the [Automatic Test: Stand-by] Result Value Screen (1xEV-DO) (Figure 5-47) depending on the previous setting of the **Simple**, the **Detail** or the **Value** softkey.

Measurement results are shown as follows:

- `Pass` or measurement value: Displayed on blue background when the measurement is passed.
- `Fail` or measurement value: Displayed on red background when the measurement is failed.

Measurement result is shown depending on the display mode.

- On the result simplified display screen, an enlarged `Pass` is shown in the center of the measurement result field when all measurement items are passed. An enlarged `Fail` is shown when even one measurement item is failed.

- On the result detailed display screen, a Pass or Fail measurement result is shown at each item cell in the measurement result field.
- On the result value screen, a measurement value is shown at each item cell in the measurement result field.

When some test items and measurement items are set to be skipped on the [Configuration: Test Sequence] screen, each result of test items and measurement items is shown by – or —.

Figure 5-45, Figure 5-46, and Figure 5-47 are the screens when both Sequence 1 and Sequence 2 are set to execute.

Figure 5-45 [Automatic Test: Stand-by] Result Simplified Screen (1xEV-DO)

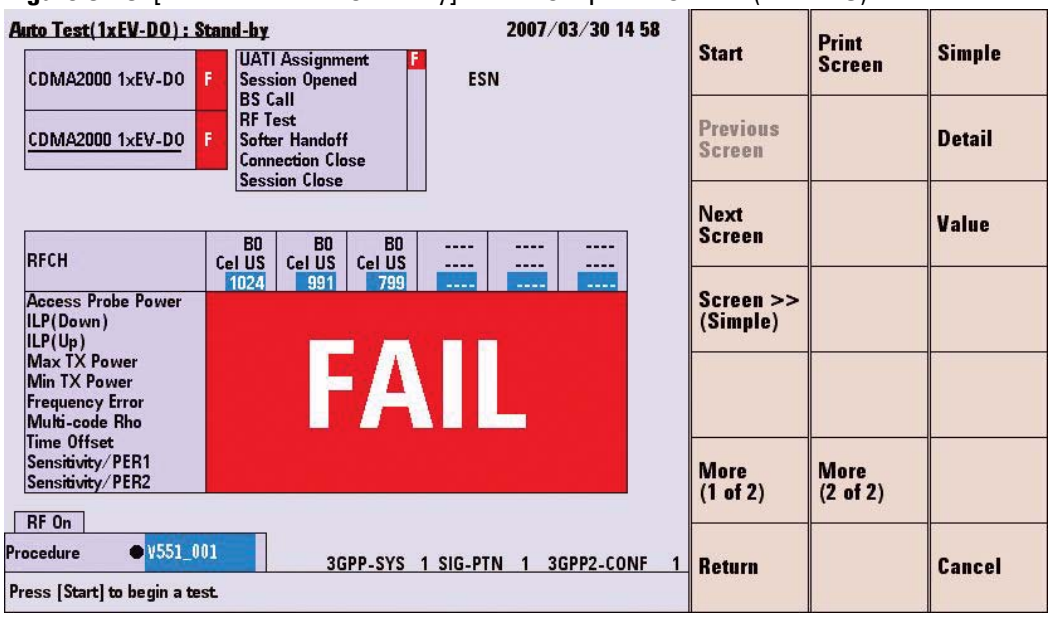


Figure 5-46 [Automatic Test: Stand-by]Result Detailed Screen (1xEV-DO)

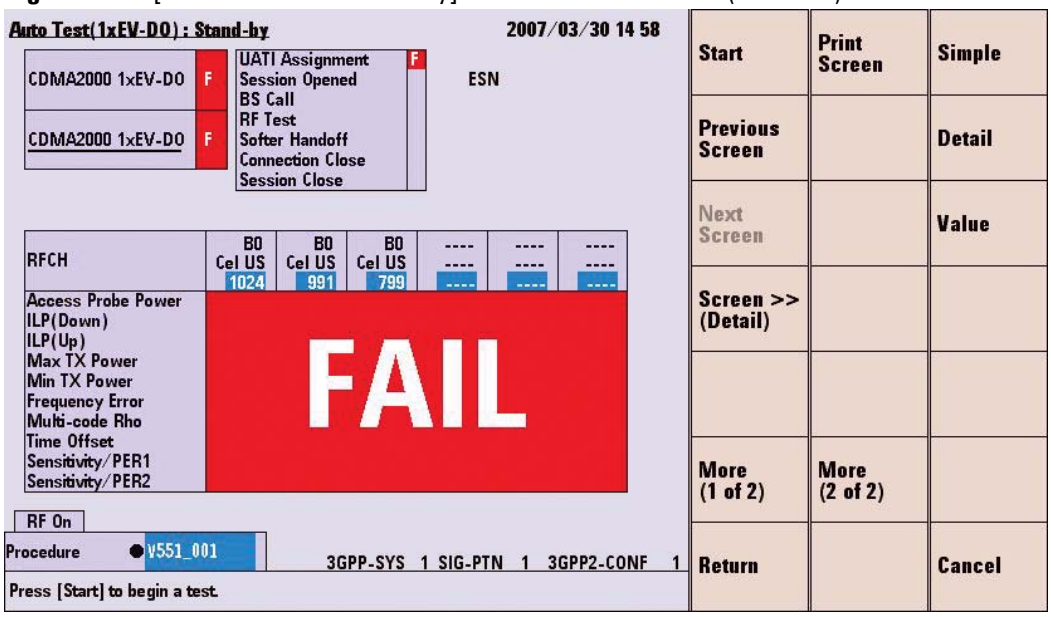
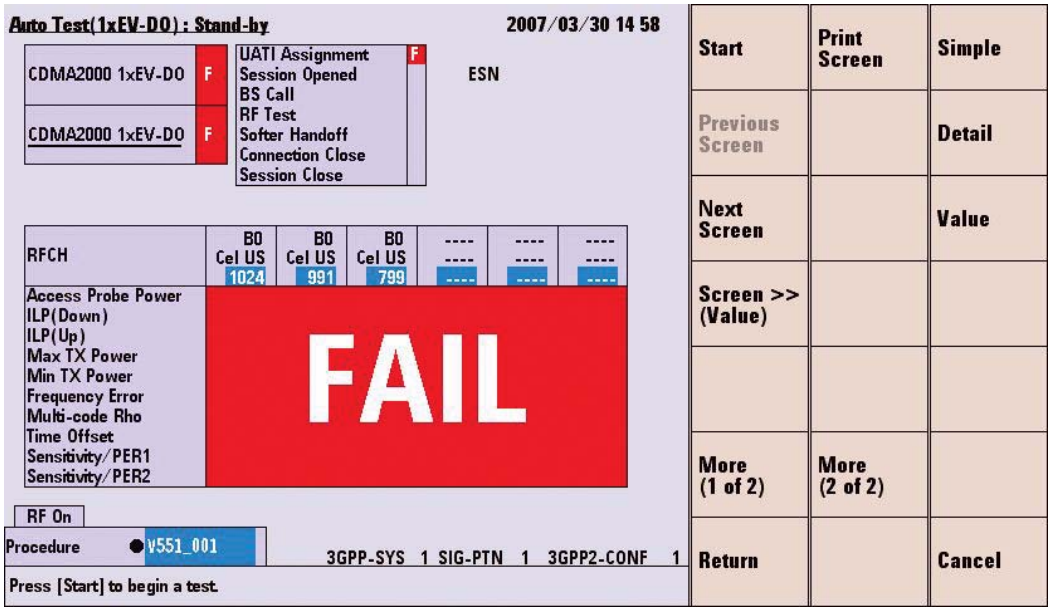


Figure 5-47 [Automatic Test: Stand-by] Result Value Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu 1

- **Start**: Starts testing the mobile phone by the Automatic Test.
- **Previous Screen**: Changes the screen to the previous sequence one. This softkey is inactivated when the screen of the sequence 1 is displayed.

- **Next Screen**: Changes the screen to the next sequence one. This softkey is inactivated when the sequence 2 is set to `Off` or the screen of Sequence 2 is displayed.
- **Screen>>**: Displays the Softkey Menu 3 containing the softkeys to select the display mode.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Softkey Menu 3

- **Simple**: Displays a Pass/Fail result of whole measurement in the middle of the measurement result field in zoom.
- **Detail**: Displays a Pass/Fail result at each item cell in the measurement result field.
- **Value**: Displays a measurement value at each item cell in the measurement result field.
- **Cancel**: Cancels changing the display mode and returns to the Softkey Menu 1.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-21 to execute a new test.

Table 5-21 Input Items on [Automatic Test: Stand-by] Result Screen (1xEV-DO)

Input Field	Description
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.

Table 5-21 Input Items on [Automatic Test: Stand-by] Result Screen (1xEV-DO)

Input Field	Description
RFCH *	Specifies the band and channel number. This parameter can be changed when the stand-by status. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH • ----: Skip Refer to Appendix B General information on cdma2000 system for details.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information from the mobile phone as Table 5-22 is displayed in the screen field.

Table 5-22 Mobile-Phone Information on [Automatic Test: Stand-by] Result Screen (1xEV-DO)

Item Information	Description
ESN	Displays the Electronic Serial Number sent from the mobile phone, with Max. 8 digits. • Displayed when information can be acquired from the mobile phone.
3GPP-SYS	Displays the value for **3GPP System** that is set in the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value for **Signaling Pattern** that is set in the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value for **3GPP2-Config** that is set in the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the [Stand-by] Result screen:

Press {Start} to begin a test.

The word surrounded by {} in the message field denotes the softkey.

Manual Test (1xEV-DO Mode)

This section explains the standard manual test procedure of a mobile phone in the 1xEV-DO Manual Test mode.

NOTE Install the C02 option to use the test function in the 1xEV-D0 mode.

Overview

Features of Manual Test

- All test items are executed while the mobile phone and the Tester are connected by call control protocol.
- Measurement in the RF test step in the test flow is executed in a real-time.
- The following systems can be selected directly from the Manual Test screen.
  Required options are in parentheses.
  GSM (G00), GPRS (G00), EGPRS (G00, G03), W-CDMA (W00, W06), HSDPA (W00, W06), cdma2000 MC-1x (C00, C01).

Setting for Manual Test in the Configuration Mode

- Loss:

  The path loss values for each band can be set on the [Configuration: Test Condition (Loss)] screen to correct the RF attenuation between the mobile phone and the Tester. Refer to Actual Input/Output Level and Correction on page 4-19 for correction of input/output signal.

- Limits of measurement items:

  Each measurement item can be measured and analyzed with test limits set on the [Configuration: Test Condition (Limit)] screen.

Manual RF Test

Table 5-23 describes measurement items of Manual RF Test. The limit for measurement items can be set on the Configuration: Test Condition Screen on page 5-158.

Table 5-23 Standard Test Items in 1xEV-DO Manual Test Measurement Item

Test Item	Description
TX Power	Measures the transmission power of the mobile phone during connection. The measurement range is from –60 to +36 dBm.
Frequency Error	Measures a transmission frequency error of the mobile phone. The measurement range is ±10 kHz.
Multi-code Rho	Measures the modulation accuracy (ρ) of transmission waveforms of the mobile phone. The measurement range is from 0.900 to 0.999.
Origin Offset	Measures the origin offset of the mobile phone. The measurement range is from –50.0 to –20.0 dBc.
Time Offset	Measures a transmission timing error of the mobile phone. The measurement range is ±10 μsec.
PER	Measures the packet error rate of the mobile phone.
Max TX Power	Press the maximum transmission power of the mobile phone. The measurement range is from –60 to +36 dBm.
Min TX Power	Press the minimum transmission power of the mobile phone. The measurement range is from –60 to +36 dBm.
Code Domain Power	Measures the power of each code channel (code domain power) of the mobile phone.

NOTE

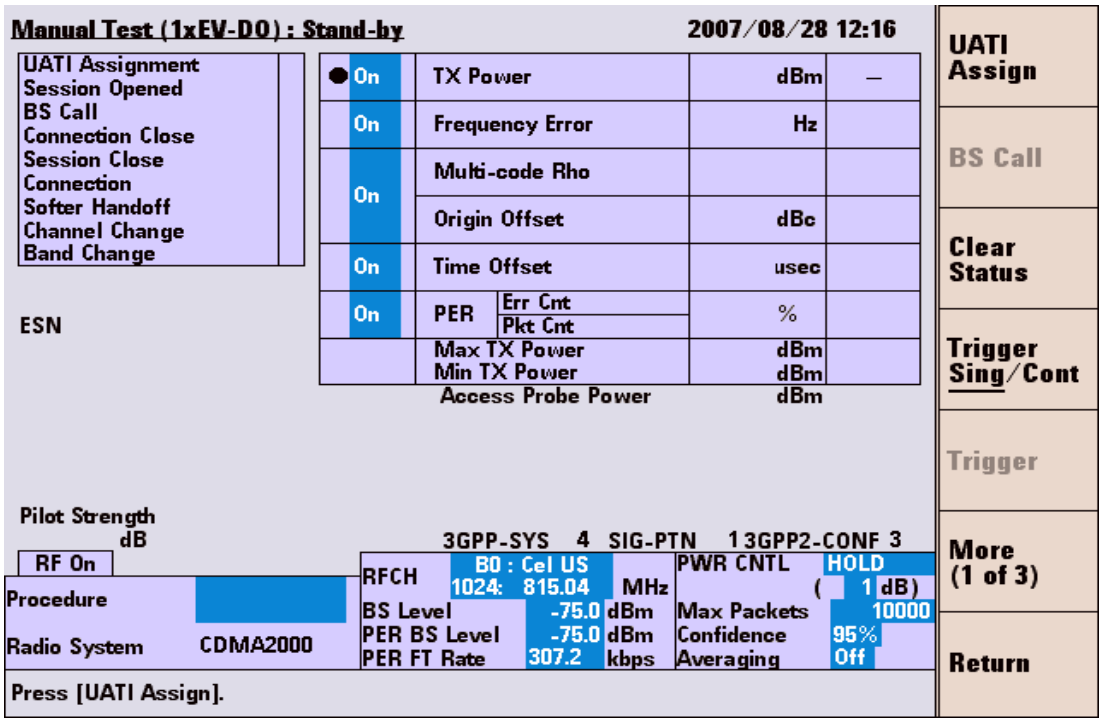
The value of default status was stored in the internal memory when the Tester was previously turned off.

A changing magnification softkey to input numerical values will be enabled. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Stand-by Screen

When the **Manual Test** softkey is pressed on the [Initial] screen, the [Manual Test: Stand-by] Screen (1xEV-DO) as Figure 5-48 is displayed.

Figure 5-48 [Manual Test: Stand-by] Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu 1

- **UATI Assign:** Executes the UATI assignment.
- **BS Call**: This softkey menu is unavailable at the Stand-by status, and become available at the Session Opened status after UATI Assign completed successfully, then executes BS call.
- **Clear Status**: Clears (or erases) the pass or fail results in the test flow.
- **Trigger Sing/Cont**: Executes RF test. Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.

- **Trigger**: Starts measurement during the Connection status. This softkey is inactivated in the Stand-by status but activated in the Connection status.
- **More (1 of 3)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **RF Output On/Off**: Selects the RF power output from `On` and `Off`. When it is set to `On`, it is set to the value of BS Level. When it is set to `OFF`, the value is set below `-120` dBm.
- **System >>**: Displays the Softkey Menu 4 to select a system. Pressing this softkey displays each mode of the installed options.
- **Session Close:** This softkey menu is unavailable at the Stand-by status, and become available at the Session Opened status after UATI Assign completed successfully, and executes Session Close.
- **Code Power:** Displays the [Code Domain Power] measurement screen.
- **More (2 of 3)**: Returns to the Softkey Menu 3.

Softkey Menu 3

- **Debug Data > USB**: Stores the debug data into the USB memory device.
- **Call Drop Timer On/Off**: Sets Call Drop Timer to `On` or `Off`.
- **More (3 of 3)**: Displays the Softkey Menu 1.

Softkey Menu 4

- **GSM**: Changes the system to GSM. The G00 option is required.
- **GPRS**: Changes the system to `GPRS`. The G00 Option is required.
- **EGPRS**: Changes the system to `EGPRS`. The G00 and G03 Options are required.

- **W-CDMA**: Changes the system to `W-CDMA`. The W00 Option is required.
- **HSDPA**: Changes the system to `HSDPA`. The W00 and W06 Options are required.
- **CDMA2000>>**: Displays the Softkey Menu 5 to select the cdma2000 system.
- **Cancel**: Cancels selecting a system and returns to the Softkey Menu 2.

Softkey Menu 5

- **MC-1x**: Changes the system to the MC-1x mode on the **CDMA Mode**. The C00 and C01 Options are required.
- **1xEV-DO**: This softkey is unavailable.
- **Cancel**: Cancels selecting the cdma2000 system and returns to the Softkey Menu 2.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-24 to execute a new test.

Table 5-24 Entries on the [Manual Test: Stand-by] Screen (1xEV-DO)

Input Field	Description
Measuring mode	Sets `On` (measure) or `Off` (not measure) for each test item group or measurement item. • TX Power • Frequency Error • Multi-code Rho, Origin Offset • Time Offset • PER
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.
RFCH *	Specify the band and channel number. This parameter can be changed when the stand-by or Connection status. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH Refer to Appendix B General information on cdma2000 system for details.

Table 5-24 Entries on the [Manual Test: Stand-by] Screen (1xEV-DO)

Input Field	Description
BS Level *	Sets the RF output level of the Tester, ranging from `-115.0` to `-18.0` dBm in `0.1` dB step. The default value is set on the [Configuration: Test Condition] screen.
PER FT Rate	Sets the Forward Data Rate (**FT Rate)** for the packet error rate measurement. The selectable values are: • 307.2 kbps • 2457.6 kbps • 3072.0 kbps (This can be set only when **Release A** is set in 1xEV-DO mode if **3GPP2 Config** is 3 or 4.)
PWR CNTL	Specifies the power control bit to control TX Power of the mobile phone. The allowable setting is as follows: • HOLD • CNT UP (Continuous up) • CNT DWN (Continuous down)
Max Packets*	Specifies the number of packets to measure the PER measurement. The allowable range is from 25 to 10000000 (or 10^7).
Confidence	Sets the confidence level of the PER measurement. Selects `95%` or `Off`.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Multi-code Rho, Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power measurement. Sets the averaging number from `2` to `99`, or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information of Table 5-25 sent from a mobile phone is displayed on the screen.

Table 5-25 Information from a Mobile Phone displayed on the [Manual Test: Stand-by] Screen (1xEV-DO)

Item Information	Description
ESN	Displays the Electronic Serial Number sent from the mobile phone, with Max. 8 digits. This number cannot be displayed when the state is Stand-by.
Pilot Strength	Displays the pilot channel measured level at the mobile phone between –13.5 and 0.0 dB when the mobile phone receives the Measurement Report message.
Radio System	The **CDMA2000** message is displayed.
Access Probe Power	When an access probe is received, its power is measured and displayed before connection. The display range is from –60.0 to 36.0 dBm. • This is not measured and not displayed when the **Access Probe Meas** field on the [Configuration: Test Condition] screen is set to `OFF`.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.

Table 5-25 Information from a Mobile Phone displayed on the [Manual Test: Stand-by] Screen (1xEV-DO)

Item Information	Description
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

The **RF On** indicator is displayed at the lower left of the display when the RF signal from the Tester is present at the RF IN/OUT connector.

CDT Off is displayed on the lower left of the display only when the Call Drop Timer is set to `Off`.

Message Field

The following message is displayed in the message field on the [Stand-by] screen:

Press {UATI Assign}.

The word surrounded by {} in the message field denotes the softkey.

Description

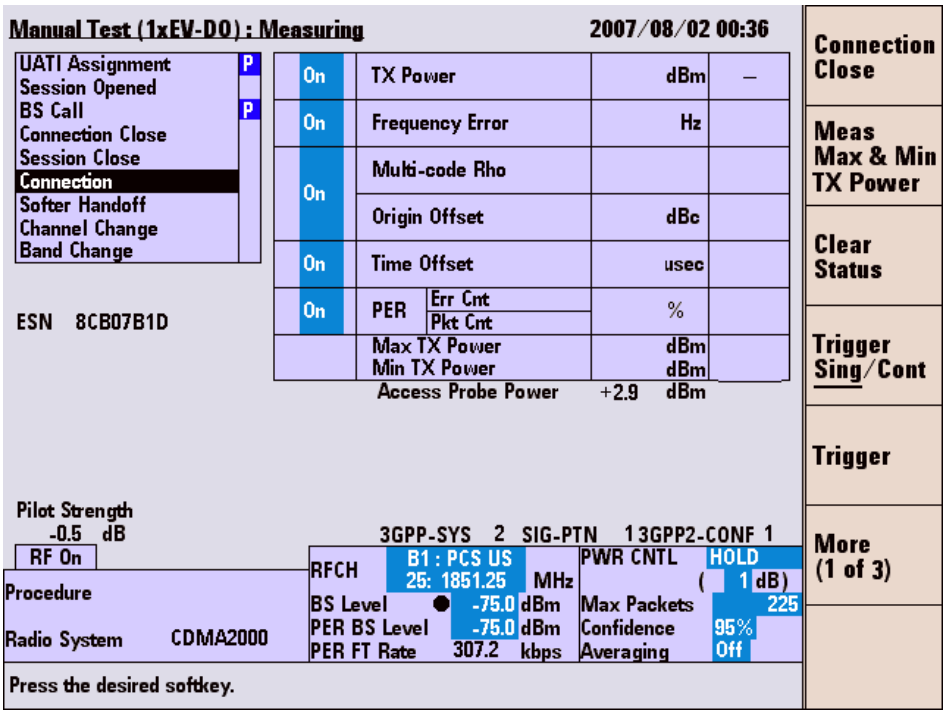
Before beginning the test, press the **UATI Assign** softkey, turn the mobile phone on and wait until the UATI Assignment step is changed to **pass**. When the UATI Assignment is passed, **P** is displayed with blue background in the test results field of the **UATI Assignment** test.

Connection Screen

When call connection between the mobile phone and the Tester is succeeded, a [Manual Test: Measuring] Connection Screen (1xEV-DO) as Figure 5-49 is displayed.

If the trigger mode is set to `Cont`, continuous measurement of RF test starts when the [Manual Test: Measuring] Connection Screen is displayed.

Figure 5-49 [Manual Test: Measuring] Connection Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu 1

- **Connection Close**: Starts the Connection Close step.
- **Meas Max & Min TX Power**: Starts to measure the maximum and minimum transmission powers.
- **Clear Status**: Clears (or erases) the pass or fail results of the protocol test.
- **Trigger Sing/Cont**: Selects the trigger mode of the RF test from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.

- Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.

- **Trigger**: : Starts single measurement of the RF test when the trigger mode is set to `Sing` and the **Trigger** softkey is pressed.
- **More (1 of 3)**: Displays the Softkey Menu 2.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Softer Handoff**: Starts the Softer Handoff.
- **Code Power**: Displays the [Code Domain Power] measurement screen.
- **More (2 of 3)**: Returns to the Softkey Menu 3.

Softkey Menu 3

- **Debug Data > USB**: This softkey is unavailable.
- **Call Drop Time On/Off**: Sets Call Drop Timer to `On` or `Off`.
- **More (3 of 3)**: Returns to the Softkey Menu 1.

Screen Field

Set the input items required to execute tests, referring to the description shown in Table 5-26.

Table 5-26 Entries on the [Manual Test: Measuring] Connection Screen (1xEV-DO)

Input Item	Description
Measuring mode	Sets `On` (measure) or `Off` (not measure) for each measurement group or measurement item.. • TX Power • Frequency Error • Multi-code Rho, Origin Offset • Time Offset • PER

Table 5-26 Entries on the [Manual Test: Measuring] Connection Screen (1xEV-DO)

Input Item	Description
RFCH *	Specifies the band and channel number. This parameter can be changed when the stand-by or Connection status. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH • Setting RFCH in the Connection status starts handoff. Handoff is also available between bands. Refer to Appendix B General information on cdma2000 system for details.
BS Level *	Sets the RF output level of the Tester, ranging from `-115.0` to `-18.0` dBm in `0.1` dB step. The default value is set on the [Configuration: Test Condition] screen.
PER BS Level	Sets the RF output level of the Tester during the packet error rate measurement. The allowable range is from –115.0 to –18.0 dBm in 0.1 dB step.
PWR CNTL	Specifies the power control bit to control TX Power of mobile phone. The allowable setting is as follows: • HOLD: Sets to HOLD. • UP: Increases the TX Power of the mobile phone to the specified value. (Not available in the Stand-by status.) • DOWN: Decreases the TX Power of the mobile phone to the specified value. (Not available in the Stand-by status.) • CNT UP: Sets to **Continuous Up**. • CNT DWN: Sets to **Continuous Down**.
Max Packets*	Set the number of packets used for PER measurement. The allowable range is from 25 to 10000000 (or 10^7).
Confidence	Selects confidence level of the PER Measurement. Selects 95% or Off.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Waveform Quality (Multi-code Rho), Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power measurement. Sets the averaging number from `2` to `99`, or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information of Table 5-27 sent from a mobile phone is displayed on the screen.

Table 5-27 Mobile Phone Information on the [Manual Test: Measuring] Screen (1xEV-DO)

Item Information	Description
ESN	Displays the Electronic Serial Number sent from the mobile phone with maximum 8 digits.
Pilot Strength	Displays the pilot channel measured level at the mobile phone between –13.5 and 0.0 dB when the mobile phone receives the Measurement Report message.
Procedure	Displays the name of parameter file currently in use.
Radio System	The **CDMA2000** message is displayed at lower left of the screen.
Access Probe Power	Measures and displays the access probe TX power of the mobile phone. The display range is from –60 to 36.0 dBm. • This is not measured and not displayed when the Access Probe Meas field on the [Configuration: Test Condition] screen is set to `OFF`.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the Connection screens:

Press the desired softkey.

Code Domain Power Measuring Screen

Code Domain Power Measurement measures all test items without the Pass/Fail results.

When you press the **More (1 of 2)** and **Code Power** softkeys in the Connection status (refer to the [Measuring] Screen of Connection Screen), the [Manual Test: Measuring] Code Domain Power Screen is displayed as shown in Figure 5-50 (if **3GPP2 Config** is set to 1 or 2 (1xEV-DO mode is set to Release 0)) or in Figure 5-51 (if **3GPP2 Config** is set to 3 or 4 (1xEV-DO mode is set to Release A)) to measure the Code Domain Power.

Select the `Sing` (Single measurement) or `Cont` (Continuous measurement) trigger mode and start the measurement.

The **Connection Close** is unavailable on this screen.

Figure 5-50 [Manual Test] Code Domain Power Screen (3GPP2 Config is set to 1 or 2) (1xEV-DO)

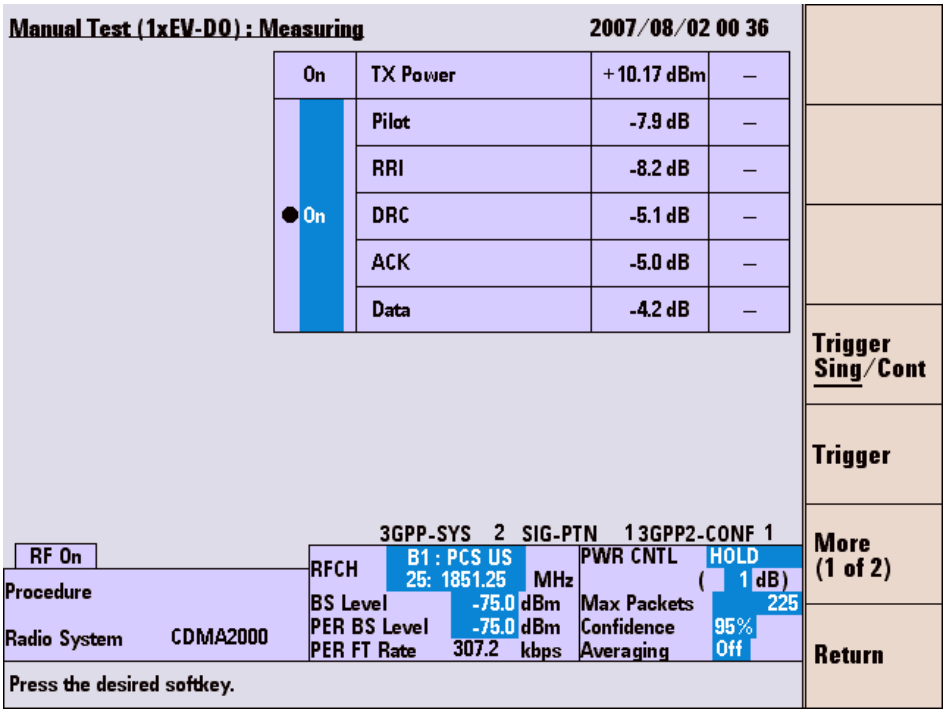
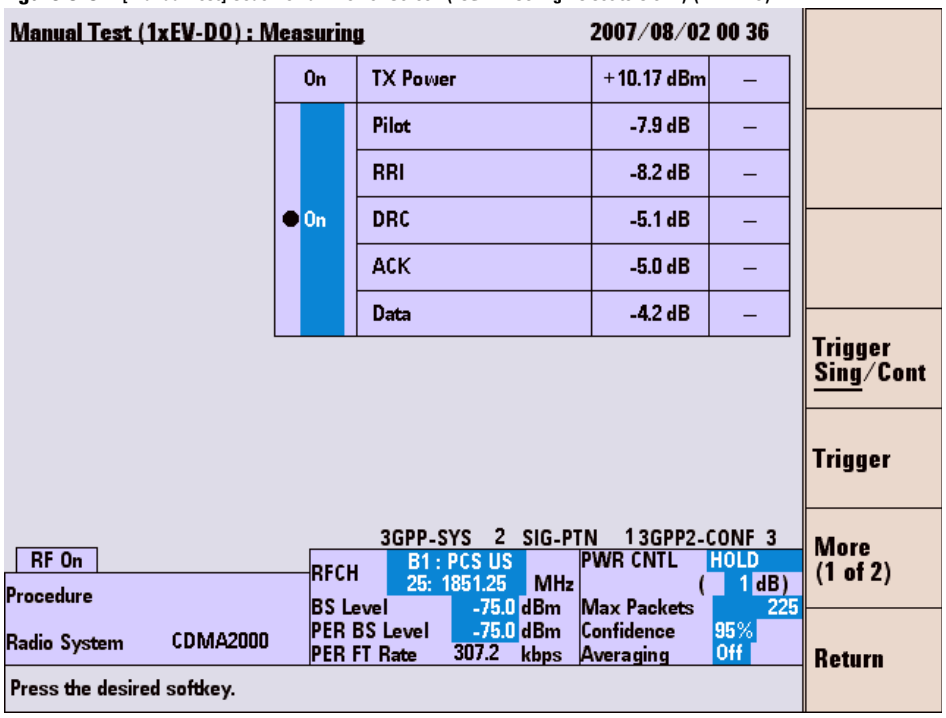


Figure 5-51 [Manual Test] Code Domain Power Screen ("3GPP2 Config" is set to 3 or 4) (1xEV-DO)



Softkey Menu Field

Softkey Menu

- **Trigger Sing/Cont**: Measures the Code Domain Power. Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.
- **Trigger**: Measures the Code Domain Power. When the trigger mode is set to "Sing", the measurement is started after this softkey is pressed.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Connection] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Call Drop Timer On/Off**: Set Call Drop Timer to **On** or **Off**.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-28 to execute a new test.

Table 5-28 Entries on the [Manual Test: Measuring] Screen for Code Domain Power Measurement (MC-1x)

Input Item	Description
Measuring mode	Sets On (measure) or Off (not measured) for each test item group or measurement item. • TX Power • Pilot, PRI, DRC, ACK, Data, DSC[C], Max Inactive Channel • The DSC is displayed only when the **3GPP2 Config** is set to 3 or 4 (1xEV-DO Rev. A). • If Code Domain Power test item is set to `On`, the TX Power measurement is also set to `On`. If the test item is set to `Off`, the TX Power measurement is also set to `Off`.
RFCH *	Specifies the band and channel number. This parameter can be changed when the stand-by or Connection status. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH Setting RFCH in the Connection status starts handoff. Handoff is also available between bands. Refer to Appendix B General information on cdma2000 system for details.
BS Level *	Sets the RF output level of the Tester, ranging from `-115.0` to `-18.0` dBm in `0.1` dB step. The default value is set on the [Configuration: Test Condition] screen.
Per BS Level*	Sets the RF output level of the Tester for the packet error rate measurement. The allowable range is from –115.0 to –18.0 dBm in 0.1 dB steps. The default value is set on [Configuration: Test Condition] screen.
PWR CNTL*	Specifies the power control bit to control TX Power of the mobile phone. The allowable setting is as follows: • HOLD • CNT UP (Continuous up) • CNT DWN (Continuous down)
Max Packets*	Specifies the number of packets used for PER measurement. The allowable range is from 25 to 10000000 (or 10^7).

Table 5-28 Entries on the [Manual Test: Measuring] Screen for Code Domain Power Measurement (MC-1x)

Input Item	Description
Confidence	Sets confidence level of the PER Measurement. Selects `95%` or `Off`.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Waveform Quality (Multi-code Rho), Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power measurement. Sets the averaging number from `2` to `99`, or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information of Table 5-29 sent from a mobile phone and the Tester is displayed on the screen field.

Table 5-29 Mobile Phone Information on the Code Domain Power Screen (MC-1x)

Item Information	Description
Procedure	The name of currently used parameter file is displayed.
Radio System	The **CDMA2000** message is displayed at lower left of the screen.
PER FT Rate	Displays the downlink data rate of the packet error rate measurement.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

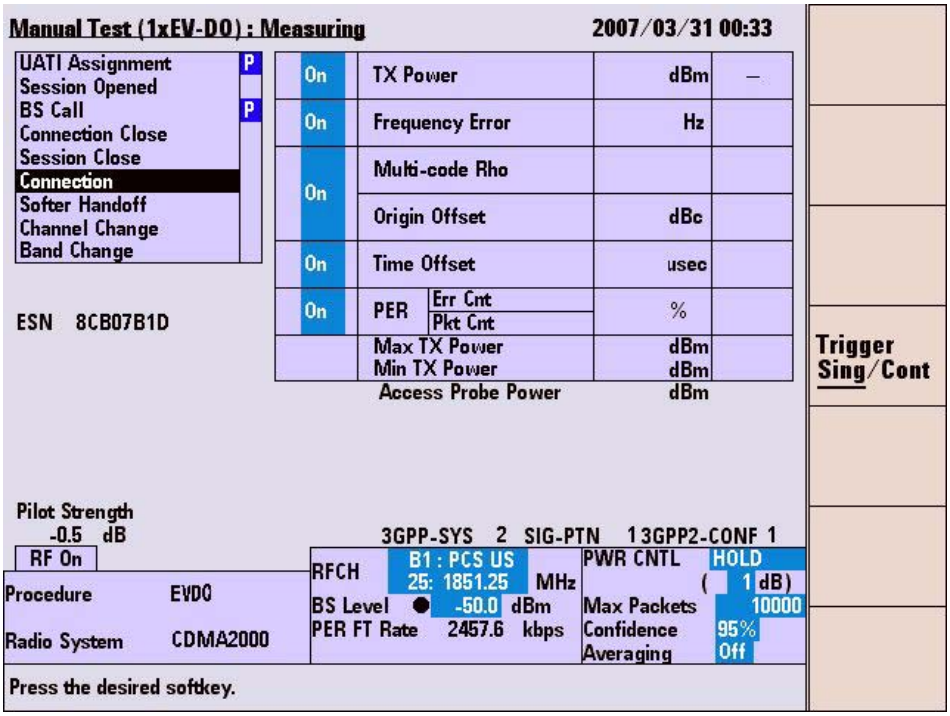
The following message is displayed in the message field on the [Measuring] Code Domain Power screen.

Press the desired softkey.

Measuring Screen

During connection, RF test can be executed to measure the mobile phone performance before the call is released.

Figure 5-52 [Manual Test: Measuring] Measuring Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu

- **Trigger Sing/Cont**: Starts the RF test. Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.

The information of Table 5-30 sent from a mobile phone and the Testeris displayed on the screen.

Table 5-30 Mobile Phone Information on the [Manual Test: Measuring] Screen (1xEV-DO)

Item Information	Description
ESN	Displays the Electronic Serial Number sent from the mobile phone, with maximum 8 digits.
Pilot Strength	Displays the pilot channel measured level at the mobile phone between –13.5 and 0.0 dB when the mobile phone receives the Measurement Report message.
Access Probe Power	Measures and displays the access probe TX power of the mobile phone. The display range is –60.0 to 36.0 dBm • This is not measured and not displayed when the **Access Probe Meas** field on the [Configuration: Test Condition] screen is set to OFF.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the [Measuring] screen:

Press the desired softkey.

Result Screen

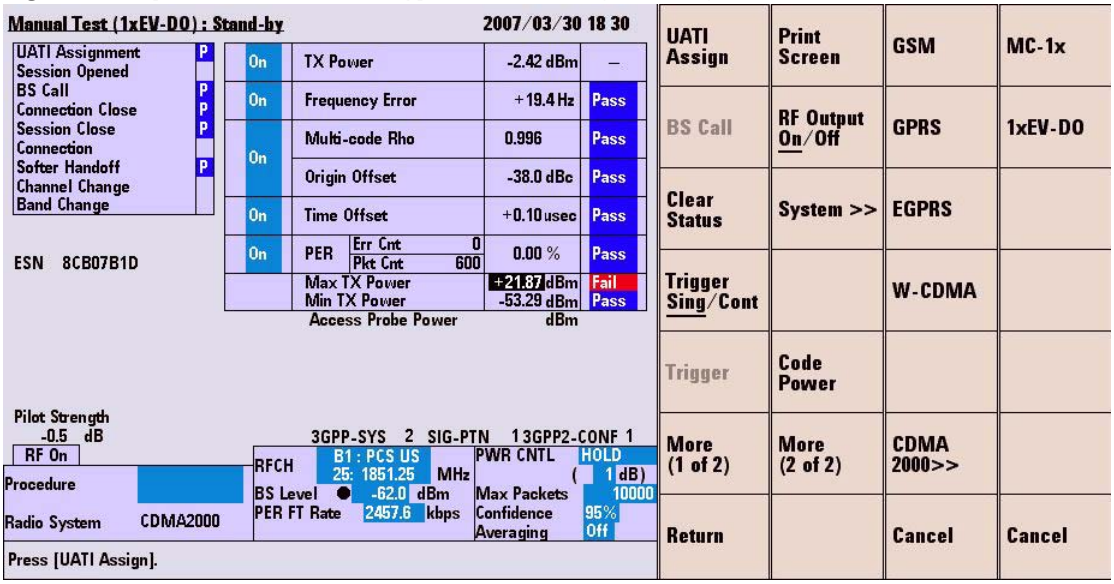
When the measurement is complete, the [Measuring] result screen is displayed.

- To disconnect the connection, press the **Connection Close** softkey.
- Press the **Session Close** softkey to close the session from the tester.

When the call is disconnected, the [Manual Test: Stand-by] Result Screen (1xEV-DO) during as Table 5-53 is displayed.

- `Pass`: Displayed on blue background when the measurement is passed.
- `Fail`: Displayed on red background when the measurement is failed.

Figure 5-53 [Manual Test: Stand-by] Result Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu 1

- **UATI Assign:** Executes the UATI assignment.
- **BS Call**: Executes BS Call. This softkey menu is unavailable at the Stand-by status, and become available at the Session Opened status after UATI Assign completed successfully, then executes BS call.
- **Clear Status**: Clears (or erases) the pass or fail result in the test flow.

- **Trigger Sing/Cont**: Executes RF test. Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.
- **Trigger**: Starts measurement during the Connection status. This softkey is inactivated in the Stand-by status but activated in the Connection status.
- **More (1 of 3)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **RF Output On/Off**: Selects the RF power output from `On` and `Off`. When it is set to `On`, the Tester outputs the BS level of the signal. When it is set to `OFF`, the Tester outputs less than –120 dBm of the signal.
- **System >>**: Displays the Softkey Menu 4 to select a system. Pressing this softkey displays each mode of the installed options.
- **Session Close:** This softkey menu is unavailable at the Stand-by status, and become available at the Session Opened status after UATI Assign completed successfully, and executes Session Close.
- **Code Power:** Displays the [Code Domain Power] measurement screen.
- **More (2 of 3)**: Returns to the Softkey Menu 3.

Softkey Menu 3

- **Debug Data > USB**: Stores the debug data into the USB memory device.
- **Call Drop Timer On/Off:** Sets Call Drop Timer to `On` or `Off`.
- **More (3 of 3)**: Displays the Softkey Menu 1.

Softkey Menu 4

- **GSM**: Changes the system to GSM. The G00 option is required.
- **GPRS**: Changes the system to GPRS. Installation for G00 Option is required.
- **EGPRS**: Changes the system to EGPRS. Installation for G00 Option and G03 Option is required.
- **W-CDMA**: Changes the system to W-CDMA. Installation for W00 Option is required.
- **HSDPA**: Changes the system to HSDPA. Installation for W00 and W06 Options are required.
- **CDMA2000>>**: Displays the Softkey Menu 5 to select the cdma2000 system.
- **Cancel**: Cancels selecting a system and returns to the Softkey Menu 2.

Softkey Menu 5

- **MC-1x**: This softkey is unavailable.
- **1xEV-DO**: Changes the system to the 1xEV-DO mode on the **CDMA Mode**. The C00, C01 and C02 options are required.
- **Cancel**: Cancels selecting the cdma2000 system and returns to the Softkey Menu 2.

Screen Field

The input fields and information from the mobile phone are displayed in the screen field. Refer to Table 5-25, “Information from a Mobile Phone displayed on the [Manual Test: Stand-by] Screen (1xEV-DO),” on page 99 and Table 5-27, “Mobile Phone Information on the [Manual Test: Measuring] Screen (1xEV-DO),” on page 104. The input field in the screen field can be changed for a new test.

TX Analyzer

Overview

Features of TX Analyzer

- This mode is used to test RF transmission performance of a mobile phone without call protocol.

Down-link signal setting

- The **RF On/Off**, **BS Level** and **Modulation** settings are linked to the [Signal Generator] screen.

TX Analyzer settings in Configuration mode

- **Loss:**

  The path loss values for each band can be set on the [Configuration: Test Condition (Loss)] screen to correct the RF attenuation between the mobile phone and the Tester. Refer to "Actual Input/Output Level and Correction" on page 19 for correction of input/output signal.

- **Limits of measurement items:**

  Each measurement item can be measured and analyzed with test limits set on the [Configuration: Test Condition] screen.

NOTE Install the C02 option to use the test function in the 1xEV-DO mode.

Radio Performance Test in TX Analyzer

Table 5-31 describes the measurement items of Radio Performance Test in the TX Analyzer test.

Table 5-31 TX Analyzer Measurement Item

Measurement Item	Description
TX Power	Measures the transmission power of a mobile phone.
Frequency Error	Measures a transmission frequency error of the mobile phone.
Multi-code Rho	Measures the waveform quality (ρ) of the mobile phone.
Time Offset	Measures the transmission timing error of the mobile phone.
Code Domain Power	Measures the power of each code channel (code domain power) of the mobile phone.

NOTE

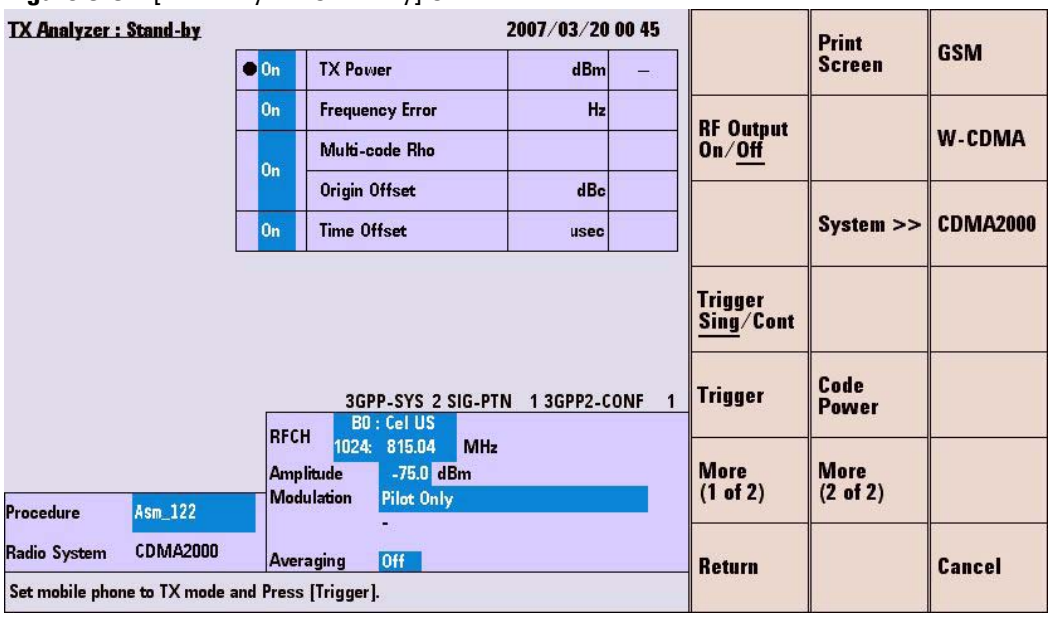
A changing magnification softkey to input numerical values will be enabled. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Default settings for the Tester at the time when the power is turned on represent the settings that were set last time the power was turned off.

Stand-by Screen

When the **TX Analyzer** softkey is pressed on the [Initial] screen, the [TX Analyzer: Stand-by] screen as Figure 5-54 is displayed:

Figure 5-54 [TX Analyzer: Stand-by] Screen



Softkey Menu Field

Softkey Menu 1

- **RF Output On/Off**: Selects the RF signal output from `On` and `Off`.
- **Trigger Sing/Cont**: Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to end the measurement.
- **Trigger**: Performs single measurement of the RF tests when the trigger mode is set to `Sing`.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **System >>**: Displays the Softkey Menu 3 to select system.
- **Code Power**: Displays the [Code Domain Power] measurement screen. It is displayed only when the Modulation mode is NOT selected to **AM Modulation 1** or **AM Modulation 2**.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Softkey Menu 3

- **GSM**: Changes the system to GSM. Installation of G00 Option is required.
- **W-CDMA**: Changes the system to W-CDMA. Installation of W00 Option is required.
- **CDMA2000>>**: This softkey is unavailable.
- **Cancel**: Cancels selecting a system and returns to the Softkey Menu 2.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-32 to execute a new test.

Table 5-32 Entries on the [TX Analyzer: Stand-by] Screen

Input Item	Description
Measuring mode	Sets `On` (measure) or `Off` (not measure) for each measurement item. • TX Power • Frequency Error • Multi-code Rho, • Origin Offset • Time Offset
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.

Table 5-32 Entries on the [TX Analyzer: Stand-by] Screen (continued)

Input Item	Description
RFCH *	Specifies the band and channel number. This parameter can be changed in the stand-by status. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH Refer to Appendix B General information on cdma2000 system for details.
Amplitude	Sets the RF output level of the tester between -115.0 and -18.0 dB at 0.1dB step.
Modulation	Specifies the Modulation from the Modulation Data setting and the Modulation Mode setting. Modulation Data setting: • MC-1x Mode • Pilot Only • Pilot+Sync+Pch+OCNS+Fch • Pilot+Sync+Pch+OCNS+Fch+Sch • 1xEV-DO Mode • Cont Pilot • Pilot+MAC+Cntrl • Pilot+MAC+Cntrl+Tch • Other • AM Modulation 1 • AM Modulation 2 Modulation Mode setting (Select the modulation mode from the followings when the modulation data is set to Pilot+MAC+Cntrl+Tch on the 1xEV-DO mode): • QPSK • 8PSK • 16QAM The selectable **modulation systems** depend on the **mode** you have selected. For the allowable combinations of **Mode** and **Modulation system**, refer to Appendix D Parameters of physical channels.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Multi-code Rho, Origin Offset, Time Offset and Code Domain Power measurement. Sets the averaging number from `2` to `99`, or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information of Table 5-33 sent from the Tester is displayed on the screen.

Table 5-33 TX Analyzer: Stand-by] Screen Information

Item Information	Description
Radio System	The **CDMA2000** message is displayed at lower left of the screen.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the [TX Analyzer: Stand-by] Screen.

Set mobile phone to TX mode and Press {Trigger}.

The word surrounded by {} in the message field denotes the softkey.

Description

Measurement starts by the following ways:

When the trigger mode is set to `Sing` (Single measurement),

- Press the **Trigger** softkey on the [Stand-by] screen to start single measurement.
- Press the **Trigger Sing/Cont** softkey on the [Stand-by] screen to start continuous measurement.

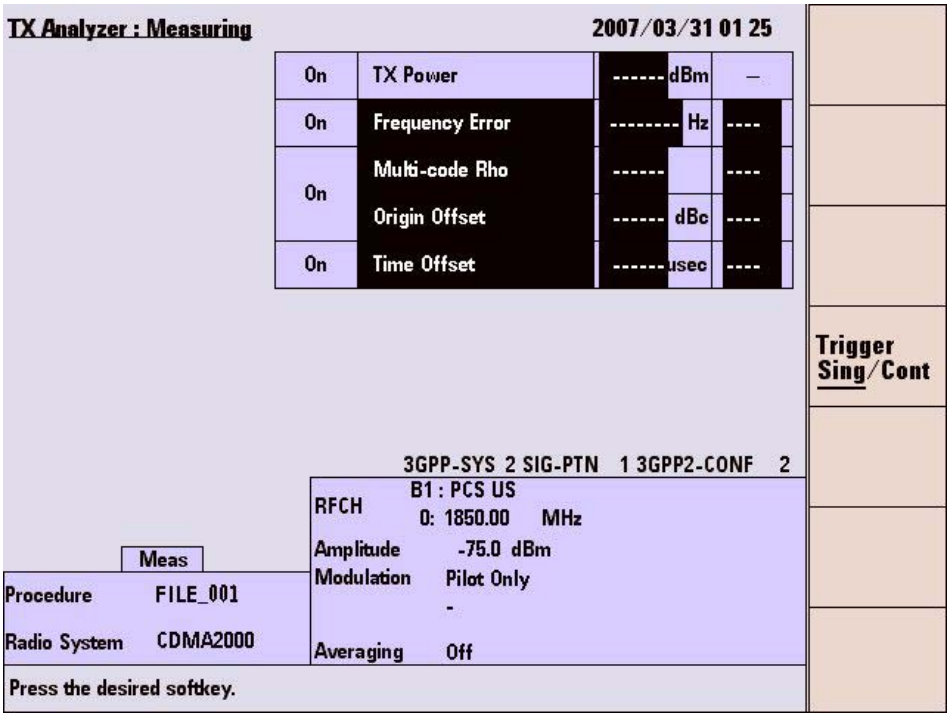
When the trigger mode is set to `Cont` (Continuous measurement),

- Continuous measurement starts on the [Measuring] screen as soon as the screen of [TX Analyzer] is displayed.

Measuring Screen

When measurement starts, the [Measuring] screen as shown Figure 5-55 is displayed.

Figure 5-55 [TX Analyzer: Measuring] Screen



Softkey Menu Field

Softkey Menu

- **Trigger Sing/Cont**: Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.

Message Field

The following message is displayed in the message screen on the [Measuring] screen:

Press the desired softkey.

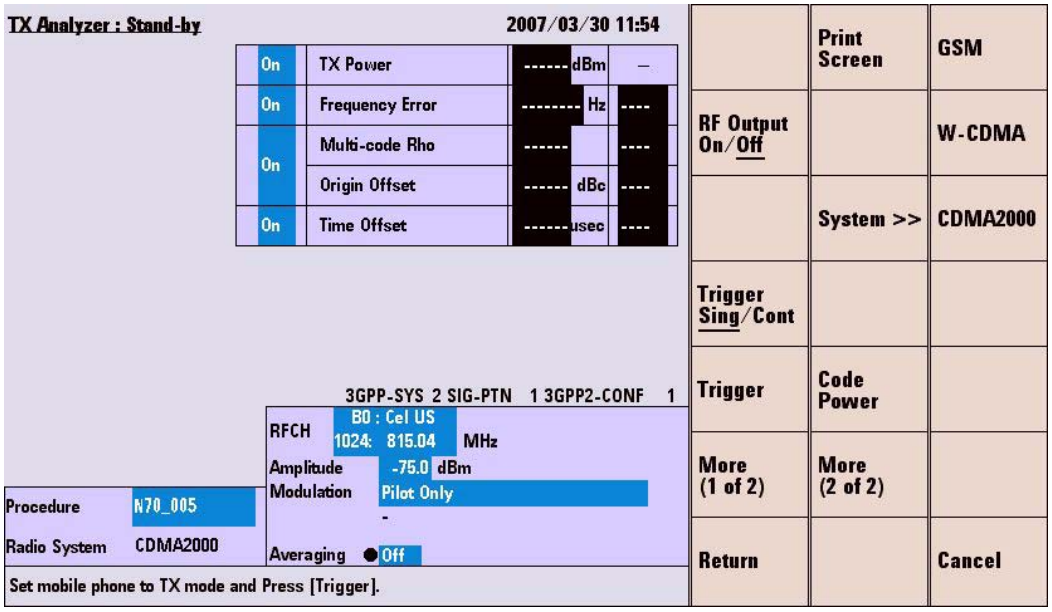
Result Screen

When the measurement is complete, the [TX Analyzer: Stand-by] Result Screen is displayed.

The measured results and the acceptance or failure of each item are displayed at the right to the test item.

- `Pass`: Displayed on blue background when the measurement is passed.
- `Fail`: Displayed on red background when the measurement is failed.

Figure 5-56 [TX Analyzer: Stand-by] Result Screen



Softkey Menu Field

Softkey Menu 1

- **RF Output On/Off**: Selects the RF power output from `On` and `Off`.
- **Trigger Sing/Cont**: Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.
- **Trigger**: Measurement starts after this softkey is pressed when the trigger mode is set to `Sing`.

- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **System >>**: Displays the Softkey Menu 3 to select system.
- **Code Power:** Displays the [Code Domain Power] measurement screen. It is displayed only when the Modulation mode is NOT set to **AM Modulation 1** or **AM Modulation 2**.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Softkey Menu 3

- **GSM**: Changes the system to GSM. The G00 option is required.
- **W-CDMA**: Changes the system to `W-CDMA`. Installation for W00 Option is required.
- **CDMA2000**: This softkey is unavailable.
- **Cancel**: Cancels selecting a system and returns to the Softkey Menu 2.

Screen Field

Set the input items required to execute tests, referring to the description shown in Table 5-32.

Code Domain Power Measuring Screen (MC-1x Mode)

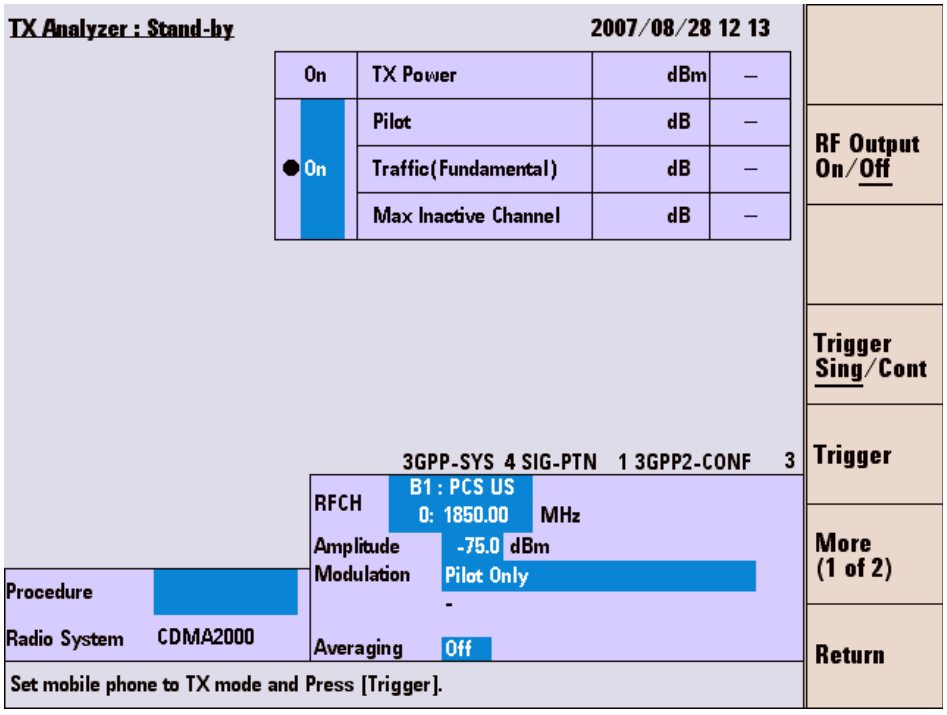
During Code Power measurement, all test items are measured but their acceptance or failure is NOT determined. The [TX Analyzer: Stand-by] Code Domain Power Screen (MC-1x) as Figure 5-57 appears if the Modulation mode has been set to **Pilot Only**, **Pilot+Sync+Pch+OCNS+Fch** or **Pilot+Sync+Pch+OCNS+Fch+Sch (MC-1x mode)**.

When you press the **More (1 of 2)** and **Code Power** softkeys in succession on the Stand-by Screen, and [TX Analyzer: Stand-by] Code Power Screen (in MC-1x Mode) as Figure 5-57 appears and the measurement becomes ready to start.

Select the `Sing` (Single measurement) or `Cont` (Continuous measurement) trigger mode and start the measurement.

The **Release** cannot be set on this screen.

Figure 5-57 [TX Analyzer: Stand-by] Code Power Screen (MC-1x Mode)



Softkey Menu Field

Softkey Menu 1

- **RF Output On/Off**: Sets the RF signal output from `On` and `Off`.

- **Trigger Sing/Cont**: Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately after the [TX Analyzer] screen is displayed.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.
- **Trigger**: Performs single measurement when the trigger mode is set to `Sing`.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [TX Analyzer] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-34 to execute a new test.

Table 5-34 Entries on the [TX Analyzer: Stand-by] Code Domain Power Screen (MC-1x)

Input Item	Description
Measuring mode	Sets `On` (measure) or `Off` (not measure) for each measurement item. • TX Power • Pilot, Traffic (Fundamental), Max Inactive Channel If the Pilot, Traffic (Fundamental), Max Inactive Channel measurement is set to `On`, TX Power measurement is also set to `On`. If it is set to `Off`, TX Power measurement is also set to `Off`.
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.

Table 5-34 Entries on the [TX Analyzer: Stand-by] Code Domain Power Screen (MC-1x)

Input Item	Description
RFCH *	Specifies the band and channel number. This parameter can be changed when the Stand-by status. The allowable range of channel number for each band is as follows: B0 (Cel US): 1024 to 1323 CH, 991 to 1023 CH, 1 to 799 CH B1 (PCS US): 0 to 1199 CH B3 (Cel JP): 1041 to 1199 CH, 1201 to 1600 CH, 801 to 1039 CH, 1 to 799 CH B4 (PCS KR): 0 to 599 CH B6 (IMT-2K): 0 to 1199 CH Refer to Appendix B General information on cdma2000 system for details.
Amplitude *	Sets the RF output level from the Tester between –115.0 and –18.0 dBm in 0.1 dB steps.
Modulation	Sets the Modulation to either of the available Modulation Data setting: • Pilot Only • Pilot+Sync+Pch+OCNS+Fch • Pilot+Sync+Pch+OCNS+Fch+Sch The selectable **modulation systems** depend on the **mode** you have selected. For the allowable combinations of **Mode** and **Modulation system**, refer to Appendix D Parameters of physical channels.
Averaging	Specifies the average number for the TX Power, Pilot and Traffic (Fundamental) , Max Inactive Channel measurements. Sets the averaging number from `2` to `99`, or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Information is also displayed in the information display area.

The information of Table 5-35 sent from a mobile phone is displayed on the screen.

Table 5-35 Mobile Phone Information on the [TX Analyzer: Stand-by] Code Domain Power Screen (MC-1x)

Item Information	Description
Radio System	The **CDMA2000** message is displayed at lower left of the screen.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

Message Field

The following message is displayed in the message field on the Connection screens:

Press the desired softkey.

Code Domain Power Measuring Screen (1xEV-DO Mode)

During Code Power measurement, all test items are measured but their acceptance or failure is NOT determined. The Code Power measuring screens of Figure 5-58 and Figure 5-59 are displayed if the Modulation mode has been set to **Cont Pilot**, **Pilot+MAC+Cntr1** or **Pilot+MAC+Cntrl+Tch (1xEV-MO mode)**.

NOTE Install the C02 option before using test functions of the 1xEV-DO mode.

To access the [TX Analyzer: Stand-by] Code Domain Power Screen (MC-1x) as Figure 5-57, set **3GPP2 Config** to `1` or `2`, set the **Modulation** to either of **Pilot Only**, **Pilot+Sync+Pch+OCNS+Fch** and **Pilot+Sync+Pch+OCNS+Fch+Sch (MC-1x mode)** on the [Stand-by] screen (refer to Stand-by Screen), and then press **More (1 of 2)** and **Code Power** softkeys.

Select the `Sing` (Single measurement) or `Cont` (Continuous measurement) trigger mode and start the measurement.

The **Release** cannot be set on this screen.

Figure 5-58 Code Power Screen (If "3GPP2 Config" is set to 1 or 2) (1xEV-DO)

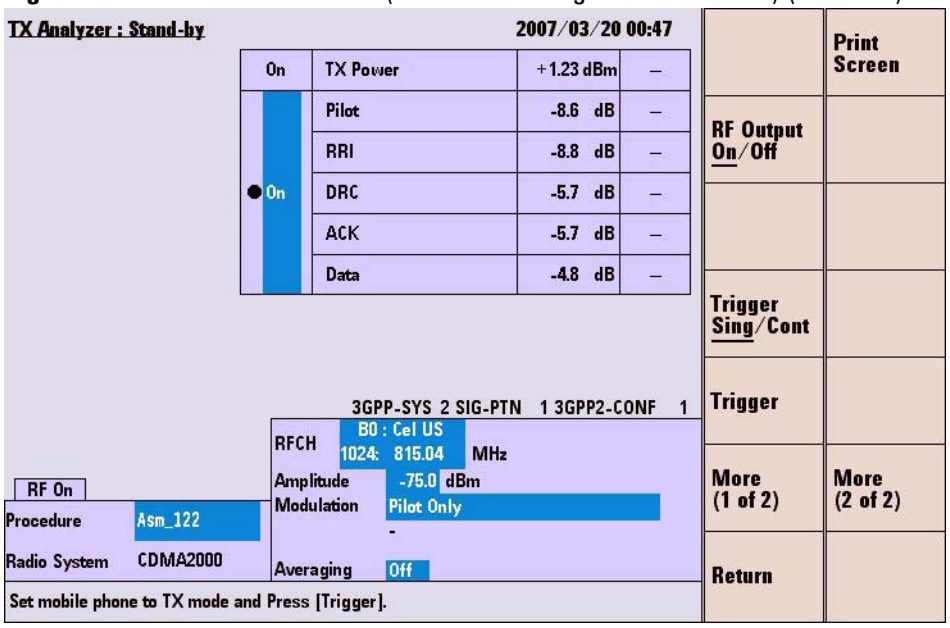
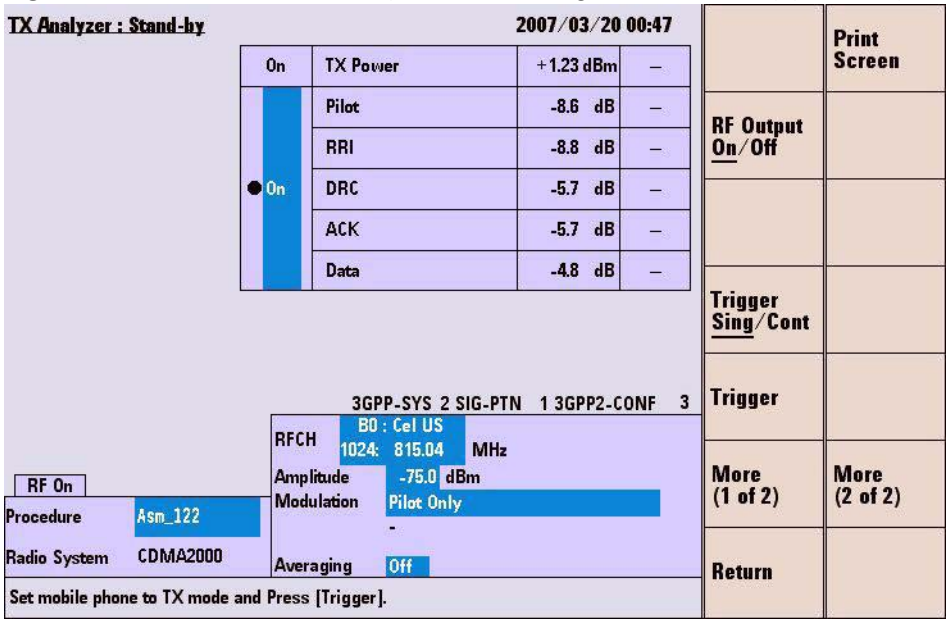


Figure 5-59 Code Power Screen (If "3GGP2 Config" is set to 3 or 4) (1xEV-DO)



Softkey Menu Field

Softkey Menu 1

- **RF Output On/Off**: Selects the RF signal output from `On` and `Off`.

- **Trigger Sing/Cont**: Selects the trigger mode from `Sing` (single) and `Cont` (continuous).
  - If you select the `Cont` (Continuous measurement) trigger mode, the continuous measurement starts immediately after the [TX Analyzer] screen is displayed.
  - Switch the `Cont` trigger mode to `Sing` (Single measurement) to terminate the measurement.
- **Trigger**: Performs single measurement when the trigger mode is set to `Sing`.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Screen Field

Set the input fields in the screen field according to the following description of Table 5-36 to execute a new test.

Table 5-36 Entries on the [TX Analyzer: Stand-by] Code Domain Power Screen (1xEV-DO)

Input Item	Description
Measuring mode	Sets `On` (measure) or `Off` (not measure) for each measurement item. • Pilot, RRI, DRC, ACK, Data, DSC *, Max Inactive Channel *DSC is displayed only when 3GPP2 Config is set to 3 or 4 (1xEV-DO Rev. A). When the Code Domain Power (Pilot, RRI, DRC, ACK, DSC, Data, Max inactive Channel) measurement is set to `On`, the TX Power measurement is also set to `On`. When it is set to `Off`, TX Power measurement is also set to `Off`.
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.

Table 5-36 Entries on the [TX Analyzer: Stand-by] Code Domain Power Screen (1xEV-DO)

Input Item	Description
RFCH *	Specifies the band and channel number. This parameter can be changed when the stand-by or Connection status. The allowable range of channel number for each band is as follows: B0 (Cel US): 1024 to 1323 CH, 991 to 1023 CH, 1 to 799 CH B1 (PCS US): 0 to 1199 CH B3 (Cel JP): 1041 to 1199 CH, 1201 to 1600 CH, 801 to 1039 CH, 1 to 799 CH B4 (PCS KR): 0 to 599 CH B6 (IMT-2K): 0 to 1199 CH Refer to Appendix B General information on cdma2000 system for details.
Amplitude *	Sets the RF output level from the Tester between –115.0 and –18.0 dBm in 0.1 dB steps.
Modulation	Sets the Modulation Data to either of the available setting: • Cont Pilot • Pilot+MAC+Cntrl • Pilot+MAC+Cntrl+Tch Sets Modulation Mode to either of the available setting: • QPSK • 8PSK • 16QAM when the Modulation Data is set to Pilot+MAC+Cntrl+Tch on the 1xEV-DO mode. The selectable **modulation systems** depend on the **mode** you have selected. For the allowable combinations of **Mode** and **Modulation system**, refer to Appendix D Parameters of physical channels.
Subtype	Sets the Subtype. The allowable setting is as follows. • 0 • 2 Subtype is available when the **3GPP2 Config** is set to 3 or 4 (1xEV-DO Rev. A), and the Modulation is set to Pilot+MAC+Cntrl+Tch.
Averaging	Specifies the average number for the TX Power, Frequency Error, Multi-code Rho, Origin Offset, Time Offset and Code Domain Power measurements. Sets the averaging number from `2` to `99`, or `Off`.

* The changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Information is also displayed in the information display area.

The information of Table 5-37 sent from the Tester is displayed on the screen.

Table 5-37 Mobile Phone Information on the [TX Analyzer] Code Domain Power Screen (1xEV-DO)

Item Information	Description
Radio System	The **CDMA2000** message is displayed at lower left of the screen.
3GPP-SYS	Displays the value of the **3GPP System** that is set in the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.
SIG-PTN	Displays the value of the **Signaling Pattern** that is set in the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set in the [Configuration: Test Condition] screen.

Signal Generator

Overview

Features of the Signal Generator

The Tester can can output to generate RF signal for cdma2000.

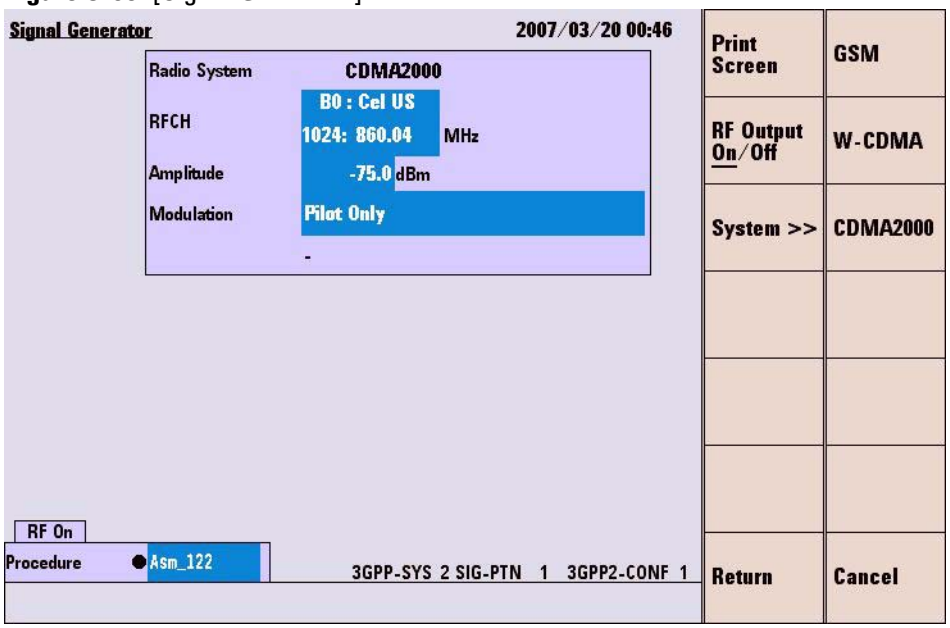
NOTE

Install the C02 option to use the test function in the 1xEV-DO mode.

Signal Generator (Signal Generator) Screen

When the **Signal Generator** softkey is pressed on the [Initial], the [Signal Generator] screen as Figure 5-60 is displayed.

Figure 5-60 [Signal Generator] screen



Softkey Menu Field

Softkey Menu 1

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.

- **RF Output**: Selects the RF power output from `On` and `Off`. `RF On` is shown at the lower left corner of screen when this softkey is set to `On`.
- **System >>**: Displays the Softkey Menu 2 to select a system.
- **Return**: Returns to the Softkey Menu 1.

Softkey Menu 2

- **GSM**: Changes the system to GSM. The G00 option is required.
- **W-CDMA**: Changes the system to `W-CDMA`. Installation for W00 Option is required.
- **CDMA2000**: This softkey is unavailable.
- **Cancel**: Cancels selecting a system and returns to the Softkey Menu 1.

Screen Field

Set the input fields to generate RF signal from the Tester according to the following description of Table 5-38.

Table 5-38 Input field of the [Signal Generator] screen

Input Field	Description
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.
RFCH *	Specifies the band and channel number. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH Refer to Appendix B General information on cdma2000 system for details.
Amplitude *	Sets the RF output level. The allowable range is from `-115.0` to `-18.0` dBm in `0.1` dB steps.

Table 5-38 Input field of the [Signal Generator] screen

Input Field	Description

Modulation	Specifies the Modulation from the Modulation Data setting and the Modulation Mode setting.
	Modulation Data setting:
	• MC-1x Mode;
	  • Pilot Only
	  • Pilot+Sync+Pch+OCNS+Fch
	  • Pilot+Sync+Pch+OCNS+Fch+Sch
	• 1xEV-DO Mode;
	  • Cont Pilot
	  • Pilot+MAC+Cntrl
	  • Pilot+MAC+Cntrl+Tch
	• Other
	  • Off
	  • AM Modulation 1
	  • AM Modulation 2
	Modulation Mode setting (Select the modulation mode from the followings when the modulation data is set to Pilot+MAC+Cntrl+Tch on the 1xEV-DO mode.
	  • QPSK
	  • 8PSK
	  • 16QAM
	The **Mode** setting determines the selectable range of **Modulation method**. Refer to Appendix D Parameters of physical channels for combinations of selectable **Mode** and **Modulation method**.

Subtype	Sets the Subtype. The allowable setting is as follows.
	  • 0
	  • 2
	Subtype is displayed and available only when the **3GPP2 Config** is set to 3 or 4 (1xEV-DO Rev. A), and the Modulation is set to Pilot+ MAC+ Cntrl+ Tch.

* The toggling magnification softkey menu is displayed. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

The information of Table 5-39 sent from the Tester is displayed on the screen.

Table 5-39 [Manual Test: Measuring] Mobile Phone information on the 1xEV-DO mode connection screen

Item Information	Description
Radio System	The **CDMA2000** message is displayed at lower left of the screen.
3GPP-SYS	Displays the value of the **3GPP System** that is set on the [Configuration: Test Sequence] and the [Configuration: Test Condition] screens.

Table 5-39 [Manual Test: Measuring] Mobile Phone information on the 1xEV-DO mode connection screen

Item Information	Description
SIG-PTN	Displays the value of the **Signaling Pattern** that is set on the [Configuration: Test Condition] screen.
3GPP2-CONF	Displays the value of the **3GPP2-Config** that is set on the [Configuration: Test Condition] screen.

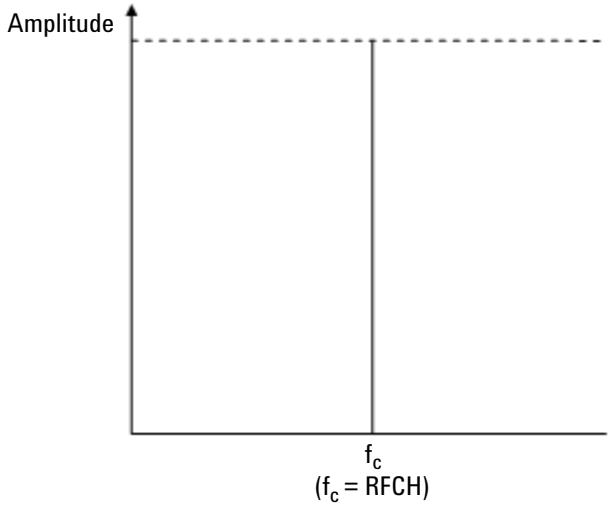
Modulation Waveform

In this clause, the RF output waveform is described when the Modulation field is set to `Off`, **AM Modulation 1** or **AM Modulation 2**.

When the Modulation is set to Off

The Tester outputs continuous wave (CW). The output frequency is set in the RFCH field. The output level is set in the Amplitude field. The output signal is shown in Figure 5-61.

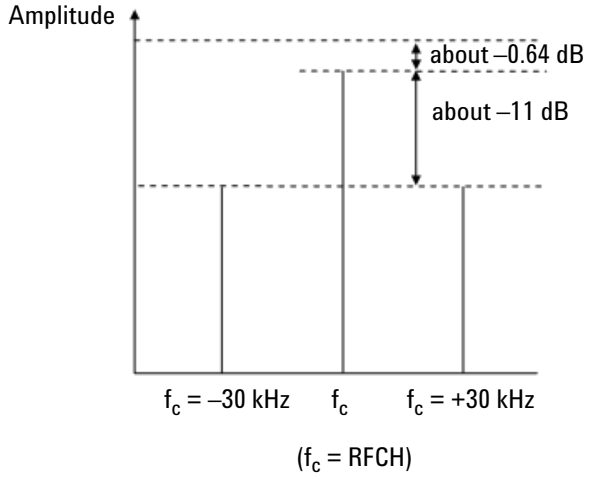
Figure 5-61 Waveform (Modulation is set to Off)



When the Modulation is set to AM Modulation 1

The Tester outputs amplitude modulation wave. The carrier frequency is set in the **RFCH** field. The carrier level is set in the **Amplitude** field. The carrier is modulated by 20 kHz sine wave. The modulation degree is 56%. The output signal is shown in Figure 5-62.

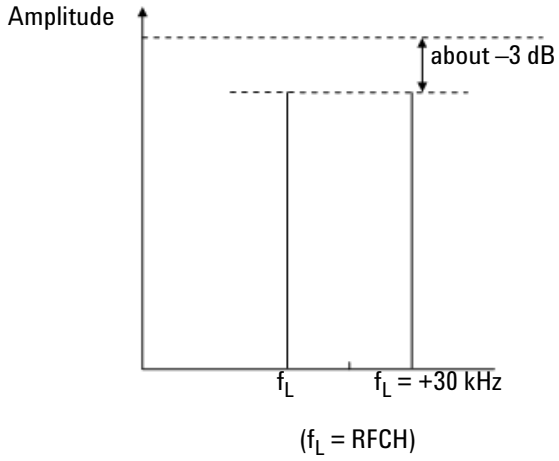
Figure 5-62 Waveform (Modulation is set to AM Modulation 1)



When the Modulation is set to AM Modulation 2

The Tester outputs DSB-SC (double sideband suppressed carrier) wave. The LSB (lower sideband) frequency is set in the RFCH field. The output signal is shown in Figure 5-63.

Figure 5-63 Waveform (Modulation is set to AM Modulation 2)



Configuration

Features of the Configuration Screen

In this mode, there are four major functions as follows:

- Configuration
- Test Sequence
- Test Condition
- File Management

NOTE A changing magnification softkey to input numerical values will be enabled. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

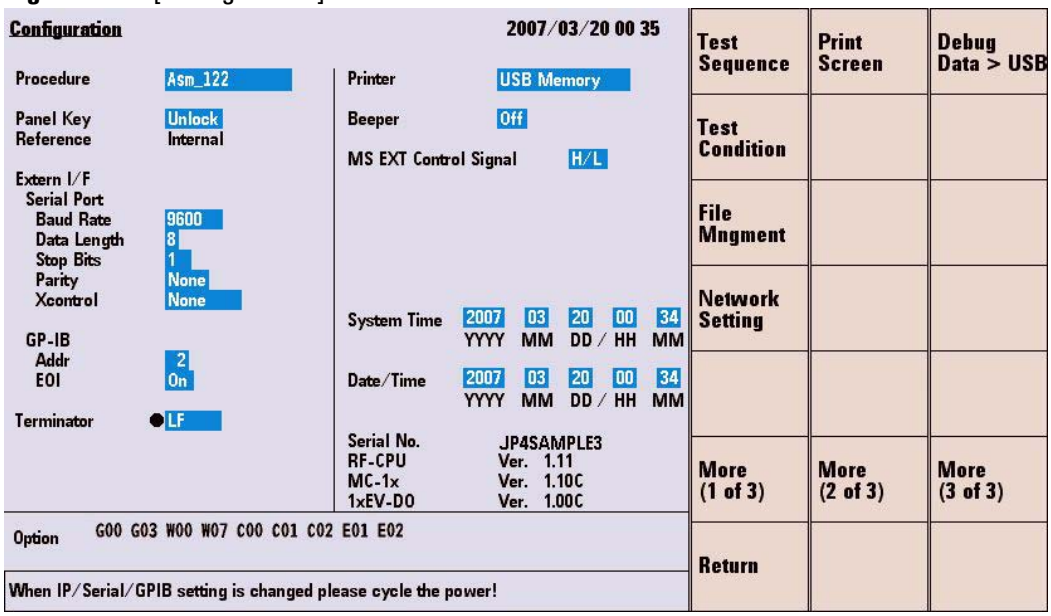
Configuration Screen

When the **Config** softkey is pressed on the [Initial] screen, the [Configuration] screen as Figure 5-64 is displayed.

Various settings for the following are set on the [Configuration] screen.

- Test sequence of Automatic Tests
- Test parameters
- Interface setting
- Other settings

Figure 5-64 [Configuration] screen



Softkey Menu Field

Softkey Menu 1

- **Test Sequence**: Displays the [Configuration: Test Sequence] screen.
- **Test Condition**: Displays the [Configuration: Test Condition] screen.
- **File Management**: Displays the [Configuration: File Management] screen.
- **Network Setting**: Displays the [Network Setting] screen.
- **More (1 of 3)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Initial] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **More (2 of 3)**: Returns to the Softkey Menu 3.

Softkey Menu 3

- **Debug Data > USB**: Outputs debug data into a USB memory device.
- **More (3 of 3)**: Returns to the Softkey Menu 1.

If option E02 is not installed, setting items for GP-IB are grayed out (disabled) as Figure 5-65.

Figure 5-65 Part of the [Configuration] Screen (without Option E02)

If option E01 is not installed, setting items for the serial port are grayed out (disabled) as Figure 5-66.

Figure 5-66 Part of the [Configuration] Screen (without Option E01)

Screen Fields

Before starting the measurement, set the input fields to use the Tester according to the following description of Table 5-40.

Table 5-40 Input items on the [Configuration] Screen

Input Field	Description
Procedure	Specifies a parameter file to be used for the test. This item displays the file name for the parameter file that is currently in use. It is also possible to select a parameter file from existing parameter files and specify it as the file to be used for the test.

Table 5-40 Input items on the [Configuration] Screen

Input Field	Description
Panel Key	Restricts operation on the front panel of the tester. Select either **Lock** or **Unlock**. • **Lock**: Functions except Automatic test and Configuration are locked. Test Sequence, Test Condition and File Management are not available in Configuration. • **Unlock**: No operational restriction on the front panel of the tester.
Serial Port	Sets the communication condition of the serial port (RS-232C) to use the external control. The option E01 is required to use this function. • Baud Rate: Set communication speed to 9600, 19200, 38400, 57600 or 115200 bit per second. • Data Length: Set the data bit length to 7 or 8 bits. • Stop Bits: Set the stop bit length to 1, 1.5 or 2 bits. • Parity: Set the parity check mode to None, Odd or Even. • Xcontrol: Set the flow control to None or Xon/Xoff. Restart the tester after you have changed the setting of the serial port.
GP-IB *	Sets various settings for external control via a GP-IB port. The option E02 is required to use this function. • Addr: Sets the address. The allowable range is from 1 to 15. • EOI: Sets EOI control. Select `On` or `Off`. • On: Enable EOI control. (Terminator setting is ignored.) • Off: Disable EOI control. (Terminator setting is valid.) Restart the tester after you have changed the setting of the GP-IB.
Terminator	Sets the terminator of output text data to `CR`, `LF` or `CR+LF`. This is the setting for external control using the serial interface, Ethernet and GP-IB. (The terminator of the input data is always `LF`.)
Printer	Sets the destination to which the print data is sent when it is printed (when the **Print Screen** softkey is pressed) to **USB Memory** or **EPSON PM-G800**. • **USB Memory**: Saves the image of the screen on the USB memory. The file format is PNG (Portable Network Graphics). • **EPSON PM-G800**: Prints the hardcopy of the screen with the specified printer.
Beeper	Sets beep. Selects `On` or `OFF`. • `On`: Beeps for each step of operation. • `OFF`: Beeps only to indicate an error or warning.
MS EXT Control Signal	Set control signals of the mobile phone. • H/ L: Control signal-1 H/Control signal-2 L • L/ H: Control signal-1 L/Control signal-2 H • H/ H: Control signal-1 H/Control signal-2 H • L/ L: Control signal-1 L/Control signal-2 L

Table 5-40 Input items on the [Configuration] Screen

Input Field	Description
System Time*	Set the system time according to the following format. The System Time is information contained in the cdma2000 broadcast signal. • YYYY: Set the year. The allowable range is from 1990 to 2037. • MM: Set the month. The allowable range is from 01 to 12. • DD: Set the day. The allowable range is from 01 to 31. • HH: Set the hour. The allowable range is from 00 to 23. • MM: Set the minute. The allowable range is from 00 to 59.
Date/ Time*	Sets the current date and time in the following formats: YYYY: Sets the year. The allowable range is from 1990 to 2037. MM: Sets the month. The allowable range is from 01 to 12. DD: Sets the day. The allowable range is from 01 to 31. HH: Sets the hour. The allowable range is from 00 to 23. MM: Sets the minute. The allowable range is from 00 to 59.

* A changing magnification softkey is available. Refer to Storing Numeric Values and Changing Magnification Softkey.

Other display items are shown below.

Table 5-41 Display items on the [Configuration] screen

Item Information	Description
Reference	Display the reference signal source in use. You may not change the reference signal source on this screen. Change the setting on the [Configuration] screen selected on the [Top Menu] screen. Refer to Configuration for details. • Internal: The internal 10MHz reference signal is used. • External: The external 10MHz reference signal is used. You need to enter the external 10MHz reference signal to the **10MHz Reference IN** connector on the back panel.
Serial No.	Display the serial number of the tester.
RF-CPU	Display the revision information of RF-CPU.
MC-1x	Display the revision information of MC-1x CPU. • This information is displayed when C00 or C01 options are installed.
1xEV-DO	Display the revision information of 1xEV-DO CPU. • This information is displayed when C00, C01 and C02 options are installed.
Option	Display the number of the installed option in three-digit alphanumeric. (Display up to 30 figures in two lines, namely 15 in each line.)

Configuration: Test Sequence Screen

When the **Test Sequence** softkey on the [Configuration] screen is pressed, the [Configuration: Test Sequence] Screen (MC-1x) as Figure 5-67, the [Configuration: Test Sequence] Screen (**3GPP2 Config** is set to 1 or 2 (1xEV-DO Rel. 0)) as Figure 5-68 or [Configuration: Test Sequence] Screen (**3GPP2 Config** is set to 3 or 4 (1xEV-DO Rev. A)) as Figure 5-69 is displayed.

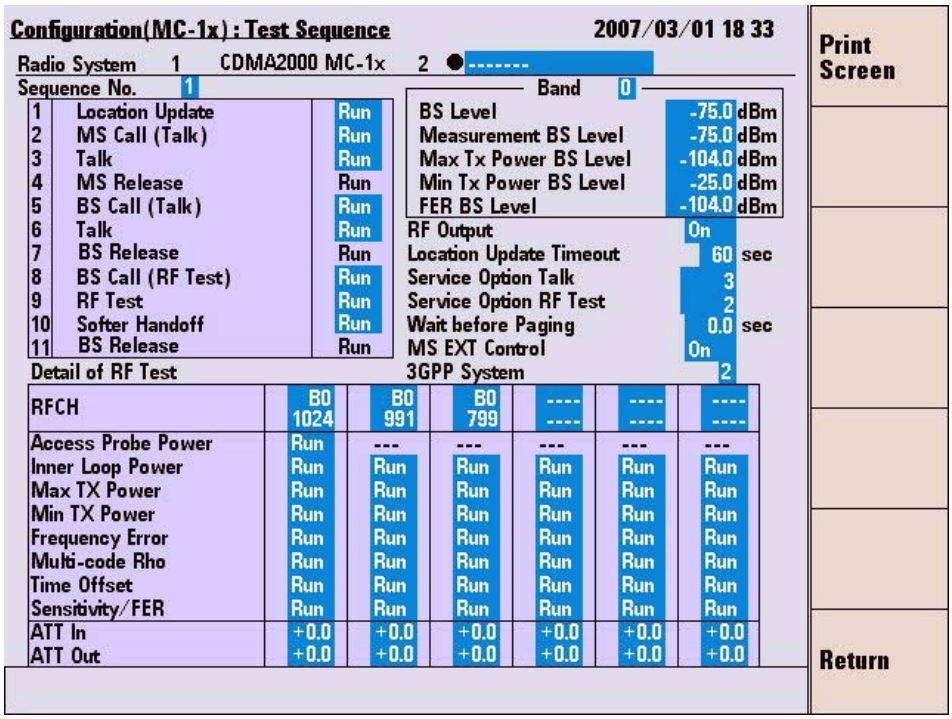
Set test conditions of Automatic Test on this screen.

Use the connection loss set in the Loss field on the [Configuration] screen to correct the connection loss between the tester and the mobile phone for every band. If, on the other hand, the connection loss depends on the frequency or channel in one band, the Tester can correct the RF test result with the attenuation set on this screen.

When the radio system is in MC-1x mode

Figure 5-67 shows the [Configuration: Test Sequence] screen (MC-1x) when the **Radio System** is set to CDMA2000 (MC-1x) mode.

Figure 5-67 [Configuration: Test Sequence] screen (MC-1x)



Softkey Menu Field

Softkey Menu

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Return**: Returns to the [Configuration] screen.

Automatic Test Flow

Refer to the following description and Table 5-42 to set test items for Automatic Test.

Select `Run` to execute the step, or select — to skip the step in the test flow.

Table 5-42 Test flow item settings (MC-1x)

Test step	Item
1	Location Update
2	MS Call(Talk)
3	Talk
4	MS Release
5	BS Call(Talk)
6	Talk
7	BS Release
8	BS Call(RF Test)
9	RF Test
10	Softer Handoff
11	BS Release

When the **Call** is changed to ---, the corresponding **Talk, RF Test** and **Release** is changed to ---.

Number	Item	Test				
2	MS Call (Talk)	Run	→	— (Set)	→	—

Number	Item	Test				
3	Talk	Run		Run		–
4	MS Release	Run		Run		–

If you set **Call** to **Run**, the corresponding **Release** will be set to **Run**. **Talk** or **RF Test** is not changed to **Run**.

Number	Item	Test				
2	MS Call (Talk)	–	→	Run (Set)	→	Run
3	Talk	–		–		–
4	MS Release	–		–		Run

If you set **Talk** or **RF Test** to **Run**, **Call** and **Release** are changed to **Run** automatically even though **Call** is set to ---.

Number	Item	Test				
5	BS Call (Talk)	–		–		Run
6	Talk	–	→	Run (Set)	→	Run
7	BS Release	–		–		Run

If you set **Talk** or **RF Test** to ---, only **Talk** or **RF Test** will be set to ---. The **Call** and **Release** are not changed to ---.

Number	Item	Test				
5	BS Call (Talk)	Run		Run		Run
6	Talk	Run	→	– (Set)	→	–
7	BS Release	Run		Run		Run

If you change the 11th sequence **BS Release** to **System Handoff**, you will have the following result.

Number	Item	Test						
10	Softer Handoff	Run		Softer Handoff	Run		Softer Handoff	Run
11	BS Release	Run	→	System Handoff (Set)	Run	→	System Handoff	Run

When the **Radio System** of the sequence-2 is set to ----------, the 7th and 11th steps are fixed to **BS Release** and may not be configured. The 7th and 11th steps of the sequence-2 are always fixed to **BS Release** and may not be configured.

Location Update up to **BS Call (RF Test)** of the sequence-2 are changed to --- at the same time when the 11th step **BS Release** of the sequence-1 is changed to **System Handoff**.

Example 1:

When the 11th step **BS Release** is changed to **System Handoff** under the condition of Seq1.CDMA2000 MC-1x Seq2.CDMA2000 MC-1x.

Seq.1

Number	Item	Test				
10	Softer Handoff	Run		Softer Handoff		Run
11	BS Release	Run	→	System Handoff (Set)	→	Run

Seq.2

Number	Item	Test	
1	Location Update	Run	—
2	MS Call (Talk)	Run	—

Seq.2

Number	Item	Test		
3	Talk	Run		—
4	MS Release	Run		—
5	BS Call (Talk)	Run		—
6	Talk	Run		—
7	BS Release	Run	→	—
8	BS Call (RF Test)	Run		—
9	RF Test	Run		Run
10	Softer Handoff	Run		Run
11	BS Release	Run		Run

Location Update up to **BS Call (RF Test)** of the sequence-2 are changed to --- and the invalid display will be released at the same time when the 11th step **System Handoff** of the sequence-1 is set to **BS Release**. Then, the 9th **RF Test**, 10th **Softer Handoff** and 11th **BS Release** are changed to ----.

Example 2:

When the 11th **System Handoff** is changed to **BS Release** under the condition of Seq1.CDMA2000 MC-1x Seq2.CDMA2000 MC-1x.

Seq.1

Number	Item	Test				
10	Softer Handoff	Run		Softer Handoff		Run
11	System Handoff	Run	→	BS Release (Set)	→	Run

Seq.2

Number	Item	Test	
1	Location Update	—	—

Seq.2

Number	Item	Test		
2	MS Call (Talk)	—		—
3	Talk	—		—
4	MS Release	—		—
5	BS Call (Talk)	—		—
6	Talk	—		—
7	BS Release	—	→	—
8	BS Call (RF Test)	—		—
9	RF Test	Run		—
10	Softer Handoff	Run		—
11	BS Release	Run		—

When the 7th step **BS Release** of the sequence-1 is set to **System Handoff**, 8th step **BS Call (RF Test)** of the sequence-1 up to the 11th **BS Release** are changed to --- and **Location Update** up to **BS Call (Talk)** of the sequence-2 are changed to --- at the same time.

Example 3:

When the 7th **BS Release** is changed to **System Handoff** under the condition of Seq1.CDMA2000 MC-1x Seq2.CDMA2000 MC-1x.

Seq.1

Number	Item	Test			
1	Location Update	Run		Location Update	Run
2	MS Call (Talk)	Run		MS Call (Talk)	Run
3	Talk	Run		Talk	Run
4	MS Release	Run		MS Release	Run
5	BS Call (Talk)	Run		BS Call (Talk)	Run
6	Talk	Run		Talk	Run
7	BS Release	Run	→	System Handoff (Set)	Run
8	BS Call (RF Test)	Run		BS Call (RF Test)	—

Seq.1

Number	Item	Test		
9	RF Test	Run	RF Test	—
10	Softer Handoff	Run	Softer Handoff	—
11	BS Release	Run	BS Release	—

Seq.2

Number	Item	Test		
1	Location Update	Run		—
2	MS Call (Talk)	Run		—
3	Talk	Run		—
4	MS Release	Run		—
5	BS Call (Talk)	Run		—
6	Talk	Run	→	Run
7	BS Release	Run		Run
8	BS Call (RF Test)	Run		Run
9	RF Test	Run		Run
10	Softer Handoff	Run		Run
11	BS Release	Run		Run

BS Call (RF Test) up to the 11th **BS Release** of the sequence-1 are changed to --- and the invalid display will be released at the same time when the 7th sequence **System Handoff** of the sequence-1 is set to **BS Release**. **Location Update** up to **BS Call (Talk)** of the sequence-2 remain set to ---- and are displayed to be invalid. Then, **BS Call (Talk)** set to ---- will be enabled and consequently the 6th **Talk** and 7th **BS Release** are set to ---.

Example 4:

When the 7th **System Handoff** is changed to **BS Release** under the condition of Seq1.CDMA2000 MC-1x Seq2.CDMA2000 MC-1x.

Seq.1

Number	Item	Test			
1	Location Update	Run		Location Update	Run
2	MS Call (Talk)	Run		MS Call (Talk)	Run
3	Talk	Run		Talk	Run
4	MS Release	Run		MS Release	Run
5	BS Call (Talk)	Run		BS Call (Talk)	Run
6	Talk	Run		Talk	Run
7	System Handoff	Run	→	BS Release (Set)	Run
8	BS Call (RF Test)	—		BS Call (RF Test)	—
9	RF Test	—		RF Test	—
10	Softer Handoff	—		Softer Handoff	—
11	BS Release	—		BS Release	—

Seq.2

Number	Item	Test		
1	Location Update	—		—
2	MS Call (Talk)	—		—
3	Talk	—		—
4	MS Release	—		—
5	BS Call (Talk)	—		—
6	Talk	Run	→	—
7	BS Release	Run		—
8	BS Call (RF Test)	Run		Run
9	RF Test	Run		Run
10	Softer Handoff	Run		Run
11	BS Release	Run		Run

Screen Fields

Set the input items required to execute tests, referring to the description shown in Table 5-43.

Table 5-43 Input items on the [Configuration: Test Sequence] Screen (MC-1x)

Input Item	Description
Test items	Specifies execution or skip at each step. Refer to Table 5-42, Test flow item settings (MC-1x).
Radio System	Radio system of Sequence No. 1 and 2. Select it from cdma2000 MC1x and cdma2000 1xEV-DO. If you do not select radio system for the sequence-2, set it to ——.
Sequence No	Sets the sequence number to set test items.
Detail of RF Test	RFCH: Specifies the band and channel number. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323CH, 991 to 1023CH, 1 to 799CH • B1 (PCS US): 0 to 1199CH • B3 (Cel JP): 1041 to 1199CH, 1201 to 1600CH, 801 to 1039CH, 1 to 799CH • B4 (PCS KR): 0 to 599CH • B6 (IMT-2K): 0 to 1199CH Refer to Appendix B General information on cdma2000 system for details. ATT In, ATT Out: Set the path loss value of the coupler and cable connected from/to the mobile phone. Refer to Actual Input/Output Level and Correction. To enable changes on ATT setting, set **Loss** on the [Configuration] screen to `On`.

Table 5-43 Input items on the [Configuration: Test Sequence] (continued)Screen (MC-1x)

Input Item	Description
BS Level (Band)	Sets output signal level from the Tester for each band. Band: Selects the band to set the BS level. • 0: Band 0 (Cel US) • 1: Band 1 (PCS US) • 3: Band 3 (Cel JP) • 4: Band 4 (PCS KR) • 6: Band 6 (IMT-2K) BS Level: Sets the BS level for the protocol test and the Access Probe Power measurement. • –115.0 to –18.0 dBm (0.1 dB steps) Measurement BS Level: Sets the BS level for the measurement of Inner Loop Power, Frequency Error, Rho or Multi-code Rho and Time Offset. • –115.0 to –18.0 dBm (0.1 dB steps) Max TX Power BS Level: Sets the BS level for the Max TX Power measurement. • –115.0 to –18.0 dBm (0.1 dB steps) Min TX Power BS Level: Sets the BS level for the Min TX Power measurement. • –115.0 to –18.0 dBm (0.1 dB steps) FER BS Level: Sets the BS level for the FER measurement. • –115.0 to –18.0 dBm (0.1 dB steps)
RF Output	Sets the RF output for Automatic Test. Select `Auto` or `On`. • `Auto`: Outputs RF signal only during measurement. • `On`: Outputs RF signal while an [Auto Test] screen is displayed.
Location Update Timeout	Set Timeout time for Location Update. The allowable range is between 5 and 300 seconds (1 step).

Table 5-43 Input items on the [Configuration: Test Sequence] (continued)Screen (MC-1x)

Input Item	Description
Service Option	Sets the service option. Talk • 1:Normal Voice • 3:EVRC 9.6 kVoice • 17:14.4 k Voice • 32768:14.4 k Voice RF Test • 2:9.6 k Data Loop Back • 9:14.4 k Data Loop Back • 55:Data Loop Back The **Radio Config** and the **Service Option** settings of after handoff are same value of before handoff. When the **BS Release** at the 7th step in the Sequence 1 is changed to the **System Handoff**, the **Service Option** settings for the **Talk** and **RF Test** in the Sequence 2 are same as the Sequence 1
Wait before Paging	Sets wait time before the **BS Call** step. The allowable range is as follows: • 0.0(no wait) to 99.9 seconds(0.1 step).
MS EXT Control	Sets the mobile phone control for MS Call, BS Call and MS Release. • On: Controls the mobile phone • On: Not control the mobile phone
3GPP System	This is the value used by W-CDMA and the set item is provided on the sequence-1 screen regardless of the radio system setting.

* A changing magnification softkey is available. Refer to Storing Numeric Values and Changing Magnification Softkey.

Set **Run** to execute the step, or select --- to skip the step in the test flow.

Table 5-44 Input items on the [Configuration: Test Sequence] Screen (MC-1x)

Measurement Item	Description
Access Probe Power	Sets execution or skip the Access Probe Power measurement.
Inner Loop Power	Sets execution or skip the Inner Loop Power measurement.
Max TX Power	Sets execution or skip the maximum TX power measurement.
Min TX Power	Sets execution or skip the minimum TX power measurement.
Frequency Error	Sets execution or skip the Frequency Error measurement.
Rho/Multi-code Rho	Sets execution or skip the waveform quality (ρ) measurement.

Table 5-44 Input items on the [Configuration: Test Sequence] Screen (MC-1x)

Measurement Item	Description
Time Offset	Sets execution or skip the transmission timing error measurement.
Sensitivity/ FER	Sets execution or skip the Sensitivity measurement in FER. The signal output level from the Tester and the number of test frames are set on the [Configuration: Test Condition] screen.

When the Radio System is in 1xEV-DO mode

Figure 5-68 and Figure 5-69 show the [Configuration: Test Sequence] screen when the **Radio System** is set to CDMA2000 1xEV-DO mode.

NOTE Install the C02 option to use the test function of the 1xEV-DO mode.

Figure 5-68 [Configuration: Test Sequence] Screen (3GPP2 Config is set to 1 or 2 (1xEV-DO Rel. 0))

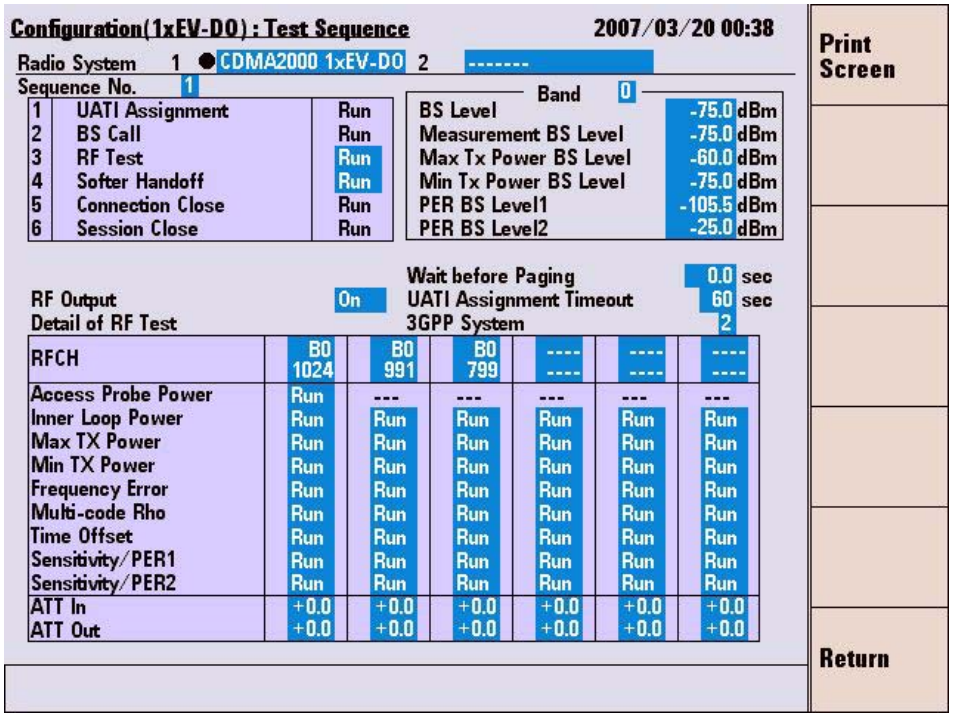
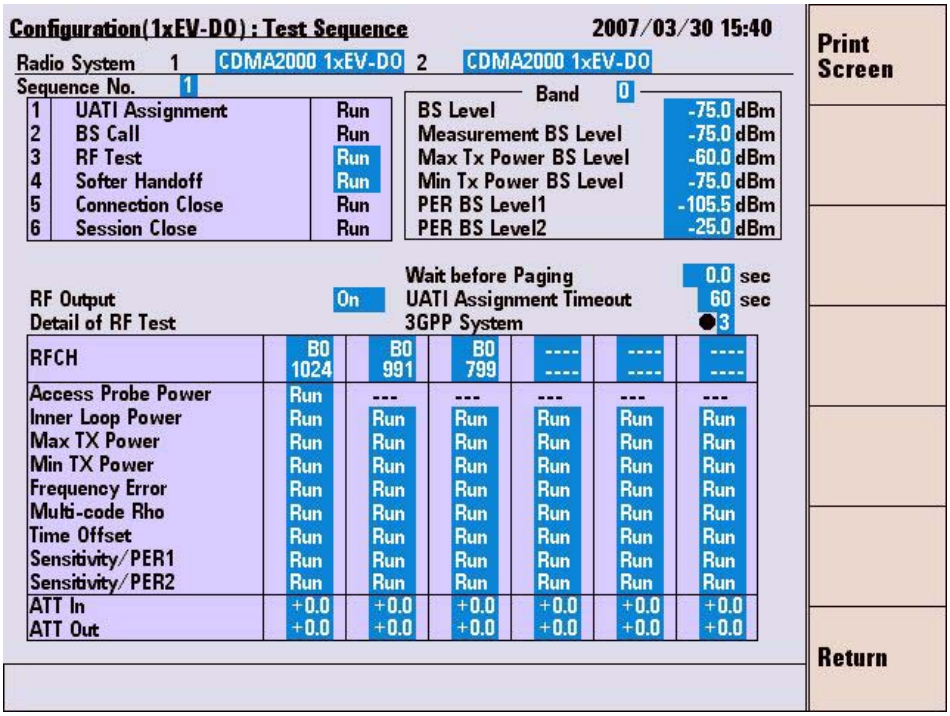


Figure 5-69 [Configuration: Test Sequence] Screen (3GPP2 Config is set to 3 or 4 (1xEV-DO Rev. A))



Softkey Menu Field

Softkey Menu

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Return**: Returns to the [Configuration] screen.

Automatic Test Flow

Refer to the following description and Table 5-45 to set test items for Automatic Test.

Setting tests for test items:

Set **Run** to execute the step and set --- to skip the step in the test flow.

Table 5-45 Combination of test item settings (1xEV-DO)

Test step	Item	Test			
1	UATI Assignment	Run	Run	Run	Run
2	BS Call	Run	Run	Run	Run
3	RF Test	Run	Run	–	–
4	Softer Handoff	Run	–	Run	–
5	Connection Close	Run	Run	Run	Run
6	Session Close	Run	Run	Run	Run

Screen Field

Set the input items required to execute tests, referring to the description shown in Table 5-46.

Table 5-46 Input items on the [Configuration: Test Sequence] Screen (1xEV-DO)

Input Item	Description
Test items	Specifies execution or skip at each step. Refer to Table 5-45, Combination of test item settings (1xEV-DO).
Radio System	Radio system of Sequence No. 1 and 2 Select it from CDMA2000 MC1x and CDMA2000 1xEV-DO. If you do not select radio system for the sequence-2, set it to ——.
Sequence No	Sets the sequence number to set test items.
Detail of RF Test	RFCH: Specifies the band and channel number. The allowable range of channel number for each band is as follows: • B0 (Cel US): 1024 to 1323 CH, 991 to 1023 CH, 1 to 799 CH • B1 (PCS US): 0 to 1199 CH • B3 (Cel JP): 1041 to 1199 CH, 1201 to 1600 CH, 801 to 1039 CH, 1 to 799 CH • B4 (PCS KR): 0 to 599 CH • B6 (IMT-2K): 0 to 1199 CH Refer to Appendix B General information on cdma2000 system for details. ATT In, ATT Out: Set the path loss value of the coupler and cable connected to the mobile phone. Refer to Actual Input/Output Level and Correction. To enable changes on ATT setting, set **Loss** on the [Configuration] screen to `On`.

Table 5-46 Input items on the [Configuration: Test Sequence] (continued)Screen (1xEV-DO)

Input Item	Description
BS Level (Band)	Sets output signal level from the Tester for each band. Band: Selects the band to set the BS level. • 0: Band 0 (Cel US) • 1: Band 1 (PCS US) • 3: Band 3 (Cel JP) • 4: Band 4 (PCS KR) • 6: Band 6 (IMT-2K) BS Level: Sets the BS level for the protocol test and the Access Probe Power measurement. • –115.0 to –18.0 dBm (0.1 dB steps) Measurement BS Level: Sets the BS level for the measurement of Inner Loop Power, Frequency Error, Multi-code Rho and Time Offset. • –115.0 to –18.0 dBm (0.1 dB steps) Max TX Power BS Level: Sets the BS level for the Max TX Power measurement. • –115.0 to –18.0 dBm (0.1 dB steps) Min TX Power BS Level: Sets the BS level for the Min TX Power measurement. • –115.0 to –18.0 dBm (0.1 dB steps) PER BS Level 1: Sets the BS level for the PER1 measurement. • –115.0 to –18.0 dBm (0.1 dB steps) PER BS Level 2: Sets the BS level for the PER2 measurement. • –115.0 to –18.0 dBm (0.1 dB steps) PER BS Level 3: (Available when the "3GPP2 Config" is set to 3 or 4 (1xEV-DO Rev. A)) Sets the BS level for the PER3 measurement. • –115.0 to –18.0 dBm (0.1 dB steps)
RF Output	Sets the RF output for Automatic Test. Select `Auto` or `On`. • `Auto`: Outputs RF signal only during measurement. • `On`: Outputs RF signal while an [Auto Test] screen is displayed.
UATI Assignment Timeout	Set Timeout time for UATI Assignment Timeout. The allowable range is between 5 to 300 seconds (1 step).

Table 5-46 Input items on the [Configuration: Test Sequence] (continued)Screen (1xEV-DO)

Input Item	Description
3GPP System	Sets the value for W-CDMA system. This input field exists on the Sequence 1 screen regardless of the radio system setting.

* A changing magnification softkey is available. Refer to Storing Numeric Values and Changing Magnification Softkey.

Table 5-47 Measurement items on the [Configuration: Test Sequence] Screen (1xEV-DO)

Measurement Item	Description
Access Probe Power	Sets execution or skip the Access Probe Power measurement.
Inner Loop Power	Sets execution or skip the Inner Loop Power measurement.
Max TX Power	Sets execution or skip the maximum TX power measurement.
Min TX Power	Sets execution or skip the minimum TX power measurement.
Frequency Error	Sets execution or skip the Frequency Error measurement.
Multi-code Rho	Sets execution or skip the waveform quality (ρ) measurement.
Time Offset	Sets execution or skip the transmission timing error measurement.
Sensitivity/ PER1	Sets execution or skip the Sensitivity measurement in PER1. The signal output level from the Tester and the number of test frames are set on the [Configuration: Test Condition] screen.
Sensitivity/ PER2	Sets execution or skip the Sensitivity measurement in PER2. The signal output level from the Tester and the number of test frames are set on the [Configuration: Test Condition] screen.
Sensitivity/ PER3	Sets execution or skip the Sensitivity measurement in PER3. The signal output level from the Tester and the number of test frames are set on the [Configuration: Test Condition] screen. This item is displayed only when the **3GPP2 Config** is set to 3 or 4 (1xEV-DO Rev. A).

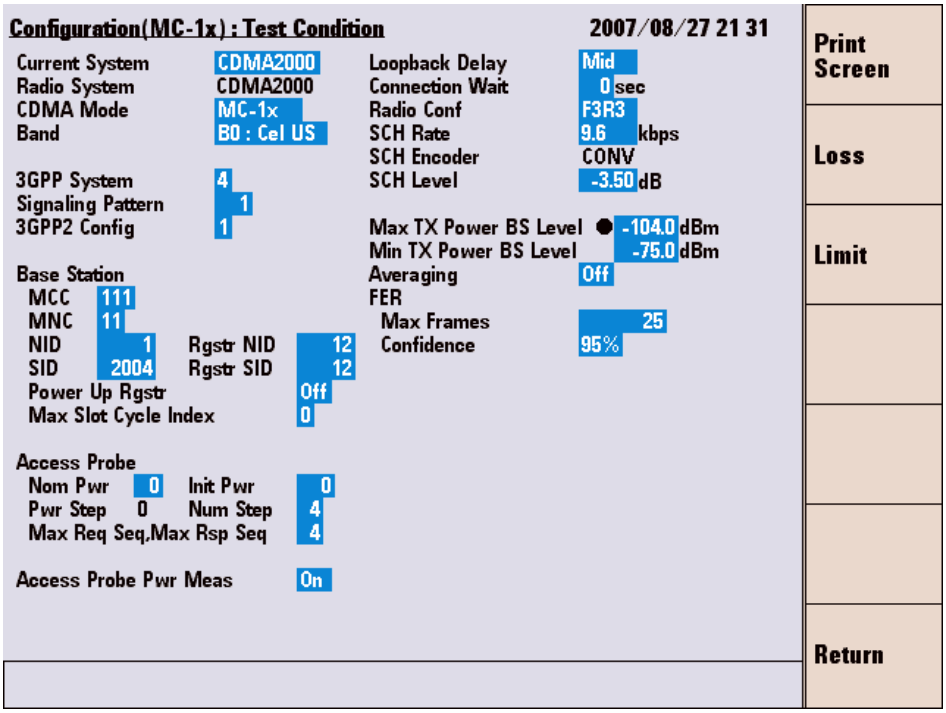
Configuration: Test Condition Screen

When the **Test Condition** softkey on the [Configuration] screen, the [Configuration: Test Condition] Screen (MC-1x) as Figure 5-70 or the [Configuration: Test Condition] Screen (1xEV-DO) as Figure 5-71 is displayed depending on the setting of CDMA Mode.

When the cdma mode is in MC-1x mode

Figure 5-70 shows the [Configuration: Test Condition] screen when **cdma mode** is set to MC-1x mode.

Figure 5-70 [Configuration: Test Condition] Screen (MC-1x)



Softkey Menu Field

Softkey Menu

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Loss**: Displays the [Configuration: Test Condition (Loss)] screen.

- **Limit**: Displays the [Configuration: Test Condition (Limit)] screen.
- **Return**: Returns to the [Configuration] screen.

Screen Field

Before starting the Automatic Test, Manual Test or TX Analyzer, set the input items required to execute tests, referring to the description shown in Table 5-48.

Table 5-48 [Configuration: Test Condition] Screen Input Field (MC-1x)

Input Field	Description
CDMA Mode	Sets the CDMA mode to either MC-1x or 1xEV-DO. This is the setting for a manual test.
Band	Set a band. • B0:Cel US • B1:PCS US • B3:Cel JP • B4:PCS KR • B6:IMT-2K
3GPP System*	Sets the 3GPP System. The allowable range is as follows: • 1 to 4 (1 step)
Signaling Pattern*	Set the signaling pattern. The allowable range is as follows: • 1 to 255 (1 step)
3GPP2 Config*	Set 3GPP2 Config. The allowable range is as follows: • 1 to 4 (1 step) • The relationship of the setting value for the **3GPP2 Config** and the protocol version of MC-1x and 1xEV-DO is as follows.

Set Value	MC-1x	1xEV-DO
1	Rel. 0	Rel. 0
2	Rel. A	Rel. 0
3	Rel. 0	Rel. A
4	Rel. A	Rel. A

Table 5-48 [Configuration: Test Condition] Screen Input Field (MC-1x) (continued)

Input Field	Description

Base Station *	Set parameters for the base station. The allowable range by item is as follows:
	• MCC (Mobile Country Code)
	  • 0 to 999 (1 step)
	• MNC (Mobile Network Code)
	  • 0 to 99 (1 step)
	• NID (Network ID)
	  • 0 to 65535 (1 step)
	• Rgstr NID (Network ID for Zone-based Registration)
	  • 0 to 65535 (1 step)
	• SID (System ID)
	  • 0 to 32767 (1 step)
	• Rgstr SID (System ID for Zone-based Registration)
	  • 0 to 32767 (1 step)
	• Power Up Rgstr (Power Up Registration)
	  • On/Off
	• Max Slot Cycle Index
	  • 0 to 7 (1 step)

Access Probe *	Set parameters for the access probe. The allowable range by item is as follows:
	• Nom Pwr (Nominal Transmit Power Offset)
	  • -8 to 7(1 step)
	• Init Pwr (Initial Power Offset)
	  • -16 to 15(1 step)
	• Setting Power Step
	  • 0 to 15(1 step)x0.5dB
	• If you turn on **Access Probe Pwr Meas**, **Power Step** is disabled and 0 is displayed.
	• When you turn off **Access Probe Pwr Meas**, **Power Step** is enabled. Values will be restored (before they were set to ON) and displayed.
	  • Setting Num Step
	  1 to 15
	  • Setting Max Req Seq,Max Rsp Seq (Maximum sequence number of Access Channel Request/Response)
	  •1 to 15 (1 step)

Access Probe Pwr Meas	Set measurement of Access Probe Power. • On or Off
Max TX Power BS Level *	Set BS level to measure Max Power in a manual test. The allowable range is between -115.0 and -18.0 dBm in 0.1 dB step.
Min TX Power BS Level *	Set BS level to measure Min Power in a manual test. The allowable range is between -115.0 and -18.0 dBm in 0.1 dB step.

Table 5-48 [Configuration: Test Condition] Screen Input Field (MC-1x) (continued)

Input Field	Description

FER *	Set parameters for FER measurement. Set items and the allowable range are as follows:
	• Max Frames
	  • 25 - 10000000 (107) for a step
	• Confidence
	  • Set either `Off` or `95%`.

Connection Wait *	Set connection suspense time for MS Call in a manual test. • 0: Immediate response • 1 to 120: Waiting a response in seconds and specifying timeout Automatic response when the specified time elapsed When the time is set to **1-120 seconds**, pressing the **Answer** softkey before an automatic response changes to the manual response.
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Waveform Quality (Rho or multi-code Rho), Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power measurement. Sets the averaging number from `2` to `99`, or `Off`.

SCH Rate	Set the SCH rate. This item is displayed only when Radio Conf is set to 3, 4 or 5. The allowable range is as follows:
	Radio Config: For 3
	  • 9.6, 19.2, 38.4, 76.8, 153.6kbps
	Radio Config: For 4
	  • 9.6, 19.2, 38.4, 76.8, 153.6kbps
	Radio Config: For 5
	  • 14.4, 28.8, 57.6, 115.2, 230.4.6kbps

SCH Encoder	Set the SCH encode type. This item is displayed only when Radio Conf is set to 3, 4 or 5. It is compulsorily set to **CONV** for SCH Data Rate=9.6k/14.4k.
	  • CONV
	  • TURB
	When SCH Rate is set to 9.6 kbps or 14.4 kbps, the TURB cannot be selected.

SCH Level	Sets code level of the forward supplemental Channel. This item is displayed only when the **Radio Config** is set to F3R3, F4R3, or F5R4 with the **Service Option** of 32. The allowable range is as follows: –20.00 to –2.50 dB (in 0.25 dB steps)

Radio Conf	Selects Radio Configuration. The allowable setting range is as follows:
	  • F1R1 (Forward 1, Reverse 1)
	  • F2R2 (Forward 2, Reverse 2)
	  • F3R3 (Forward 3, Reverse 3)
	  • F4R3 (Forward 4, Reverse 3)
	  • F5R4 (Forward 5, Reverse 4)
	When the F1R1 or F2R2 is selected, the waveform quality is displayed as **Rho**. When the others are set, **Multi-code Rho** is displayed.

Loopback Delay	Selects sound loop-back delay from `Short`, `Mid` and `Long`. This setting is for Automatic Test and Manual Test.

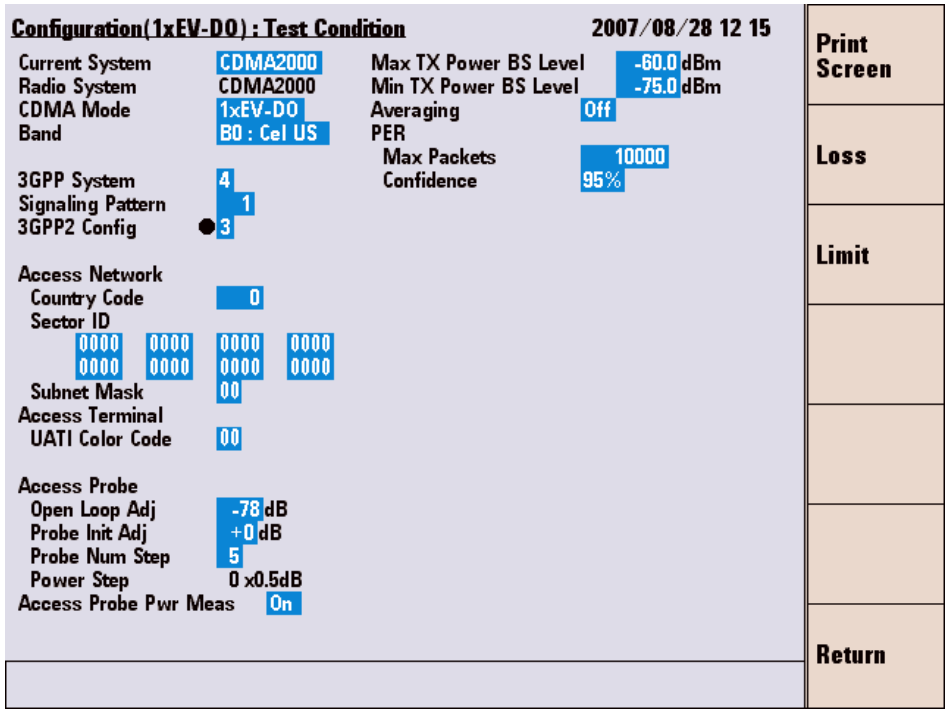
* A changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

When CDMA Mode is in 1xEV-DO Mode

Figure 3.71 shows the [Configuration: Test Condition] Screen (1xEV-DO) when CDMA mode is set to 1xEV-DO mode.

NOTE Install the C02 option before using test functions of the 1xEV-D0 mode

Figure 5-71 [Configuration: Test Condition] Screen (1xEV-DO)



Softkey Menu Field

Softkey Menu

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Loss**: Displays the [Configuration: Test Condition (Loss)] screen.

- **Limit**: Displays the [Configuration: Test Condition (Limit)] screen.
- **Return**: Returns to the [Configuration] screen.

Screen Field

Before starting the Automatic Test, Manual Test or TX Analyzer, set the input items required to execute tests, referring to the description shown in Table 5-49.

Table 5-49 [Configuration: Test Condition] Screen Input Field (1xEV-DO)

Input Field	Description
CDMA Mode	Sets the CDMA to either MC-1x or 1xEV-DO. This is the setting for a manual test.
Band	Set the band. • B0:Cel US • B1:PCS US • B3:Cel JP • B4:PCS KR • B6:IMT-2K
3GPP System*	Set 3GPP System. The allowable range is as follows: • 1 to 4 (1 step)
Signaling Pattern*	Set the signaling pattern. The allowable range is as follows: • 1 to 255 (1 step)
3GPP2 Config*	Set 3GPP2 Config. The allowable range is as follows: • 1 to 4 (1 step) • The relationship of the setting value for the **3GPP2 Config** and the protocol version of MC-1x and 1xEV-DO is as follows.

Set Value	MC-1x	1xEV-DO
1	Rel. 0	Rel. 0
2	Rel. A	Rel. 0
3	Rel. 0	Rev. A
4	Rel. A	Rev. A

Table 5-49 [Configuration: Test Condition] Screen Input Field (1xEV-DO) (continued)

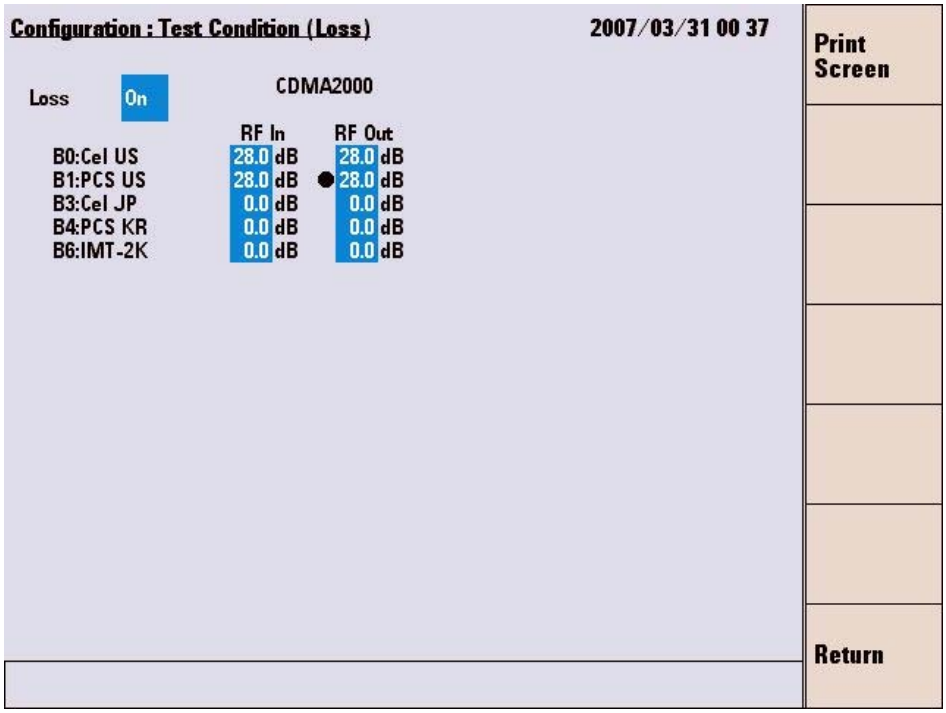
Input Field	Description
Access Probe *	Set parameters for the access probe. Setting Open Loop Adj (Open Loop Adjust) • 0 to -255 (1 dB step) Setting Probe Init Adj (Probe Initial Adjust) • -16 to +15 (1 dB step) Setting Probe Num Step (Probe Num Step) • 1 to 15 Setting Power Step (Power Step) • 0 to 15 (1 step) × 0.5 dB • If you turn on **Access Probe Pwr Meas**, **Power Step** is disabled and 0 is displayed. • When you turn off **Access Probe Pwr Meas**, **Power Step** is enabled. Values will be restored (before they were set to ON) and displayed.
PER *	Set parameters for FER measurement. Set items and the allowable range are as follows: • Max Packet • 25 to 10000000 (10^7) for a step • Confidence • Set either Off or 95%.
Access Probe Pwr Meas	Set measurement of Access Probe Power. • On or Off
Averaging	Specifies the average number of the measurement of the TX Power, Frequency Error, Multi-code Rho, Origin Offset, Time Offset, Max TX Power, Min TX Power and Code Domain Power measurement. Sets the averaging number from `2` to `99`, or `Off`.
Max TX Power BS Level *	Set BS level to measure Max Power in a manual test. The allowable range is between -115.0 and -18.0 dBm in 0.1 dB step.
Min TX Power BS Level *	Set BS level to measure Min Power in a manual test. The allowable range is between -115.0 and -18.0 dBm in 0.1 dB step.
Access Network *	Set Access Network. The allowable range by set item is as follows: • Country Code • 0 to 4095 (1 step) • Sector ID • 0 to FFFF(1 step Hex) • Subnet Mask • 0 to FF(1 step Hex)
Access Terminal *	• UATI Color Code • 0 to FF(1 step Hex) • UATI024 • 0 to FFFFFF(1 step Hex)

* A changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Configuration: Test Condition (Loss) Screen

When the **Loss** softkey is pressed, [Configuration: Test Condition (Loss)] as Figure 5-72 is displayed.

Figure 5-72 [Configuration: Test Condition (Loss)] screen



Softkey Menu Field

Softkey Menu 1

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **Return**: Returns to [Configuration: Test Condition] screen.

Screen Field

Before starting the measurement, set the input items required to execute tests, referring to the description shown in Table 5-50.

Table 5-50 Input field on the [Configuration: Test Condition (Loss)] screen

Input Field	Description
Loss*	Sets path losses generated by the coupler and cable used to connect mobile phones and radio signals by band. Select `On` or `Off`. • `On`: Take coupling loss setting for RF In/Out into consideration. [Configuration: Select On to enable the ATT setting change on the [Test Sequence] screen. • `Off`: Do not take the setting into consideration for RF In/Out. Set the loss for `RF In` and `RF Out` items as shown below according to the transmitter test and receiver test. • `RF In`: Set a traffic channel loss value for a transmitter test. The allowable range is between 0.0 and 99.9dB in 0.1 dB step. • `RF Out`: Set a traffic channel loss value for a receiver test. The allowable range is between 0.0 and 99.9dB in 0.1 dB step. There are some restrictions on the set value for **Loss** and ATT RF In/Out set on the [Test Sequence] screen. Refer to Actual Input/Output Level and Correction on page 4-19.

* A changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

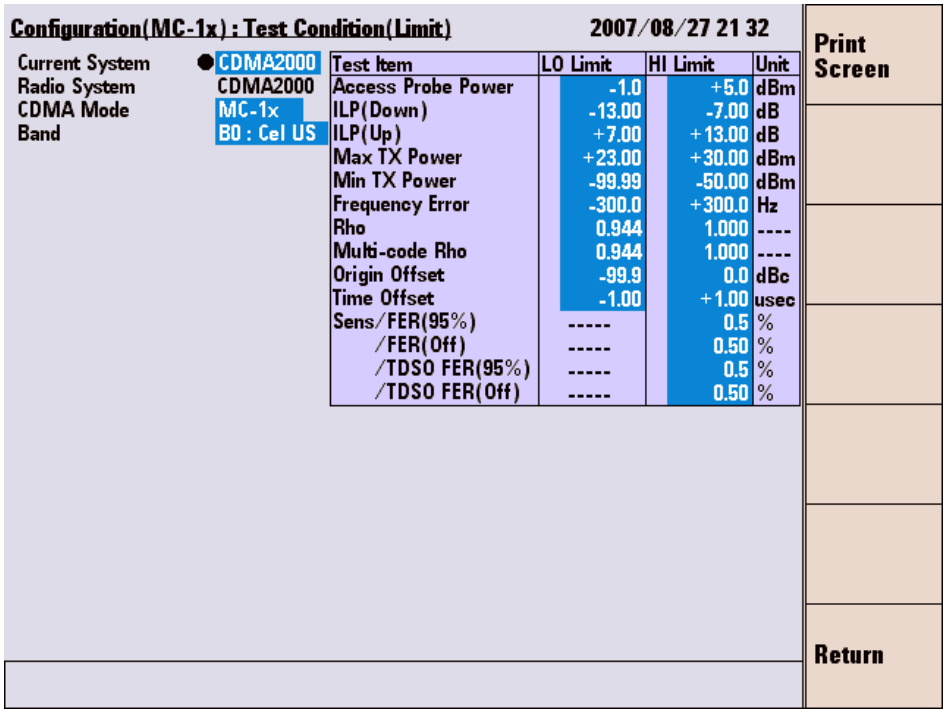
Configuration: Test Condition (Limit) Screen

The [Configuration: Test Condition(Limit)] screen is used to define the test limits to judge Pass/Fail in Automatic Test, Manual Test, and TX Analyzer modes. You can access to this screen by pressing Limit softkey menu on the [Configuration: Test Condition] screen. After pressing Limit softkey, the screen shown as Figure 5-73 or Figure 3.74 appears in accordance with the selected CDMA Mode (MC-1X or 1xEV-DO).

Configuration: Test Condition (Limit)Screen (MC-1x)

Figure 5-73 shows the [Configuration: Test Condition (Limit)] Screen (MC-1x).

Figure 5-73 [Configuration: Test Condition (Limit)] Screen (MC-1x)



Softkey Menu Field

- **Print Screen**: Prints a hardcopy of the screen or stores the screen image in a USB memory device, according to the **Printer** field on the [Configuration] screen.
- **Return**: Returns to the [Configuration: Test Condition] screen.

Screen Field

The test limits are used by the Tester to judge Pass/Fail for each test in Automatic Test, Manual Test, and TX Analyzer modes. The test limits are defined independently for each combination of the CDMA Mode and the frequency band.

You can define the test limits of each test item by entering the desired value to the corresponding test limit fields (**LO Limit** and **HI Limit**) shown in Figure 5-73.

Before entering the test limits, make sure that the CDMA Mode and the frequency band are selected correctly for the test limits you are entering.

Table 5-51[Configuration: Test Condition (Limit)] Measurement Item (MC-1x)

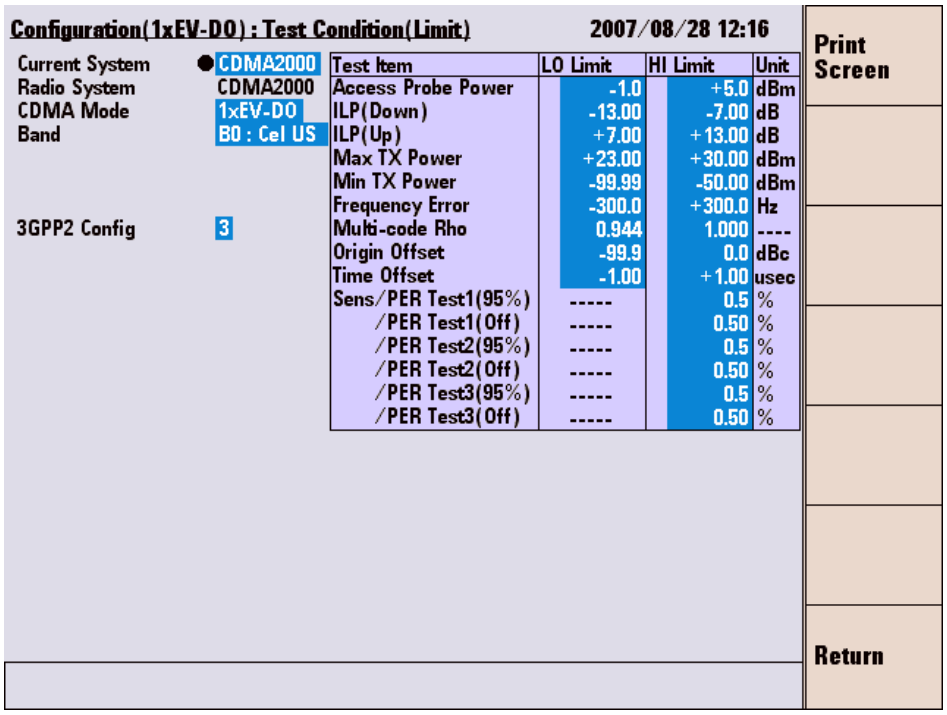
Measurement Item	Description
CDMA Mode	Sets the CDMA Mode to **MC-1x** or **1xEV-DO.**
Band	Sets the Band to either of: • B0: Cel US • B1: PCS US • B3: Cel JP • B4: PCS KR • B6: IMT-2K
Access Probe Power	Sets high and low measurement limits of the Access Probe Power. The allowable range is from –99.9 to +99.9 dBm in 0.1 dB steps.
Inner Loop Power (ILP)	Sets high and low measurement limits of the Inner Loop Power. The allowable range is from –99.9 to +99.9 dB in 0.01 dB steps.
Max TX Power	Sets high and low measurement limits of the Maximum Transmission Power. The allowable range is from –99.9 to +99.9 dBm in 0.01 dB steps.
Min TX Power	Sets high and low measurement limits of the Minimum Transmission Power. The allowable range is from –99.9 to +99.9 dBm in 0.01 dB steps.
Frequency Error	Sets high and low measurement limits of the Frequency Error. The allowable range is from –10000.0 to +10000.0 Hz in 0.1 Hz steps.
Rho	Sets high and low measurement limits of the waveform quality (ρ). The allowable range is from 0.800 to 1.000 (0.001 steps).
Multi-code Rho	Sets high and low measurement limits of the waveform quality (ρ). The allowable range is from 0.800 to 1.000 (0.001 steps).
Origin Offset	Sets high and low measurement limits of the Origin Offset. The allowable range is from –99.9 to 0.0 dBc in 0.1 dB steps.
Time Offset	Sets high and low measurement limits of the Time Offset. The allowable range is from –10.00 to +10.00 sec in 0.01 sec steps.
Sensitivity/ FER (95%)	Sets high measurement limit of the sensitivity/FER when the Confidence is set to 95%. The allowable range is from 0.0 to 5.0% (0.5% steps).
Sensitivity/ FER (Off)	Sets high measurement limit of the sensitivity/FER when the Confidence is set to `Off`. The allowable range is from 0.00 to 100.00% (0.01% steps).
Sensitivity/TDSO FER (95%)	Sets high measurement limit of the Sensitivity/TDSO FER when the Confidence is set to 95 %. The allowable range is from 0.0 to 5.0% (0.5% steps).
Sensitivity/TDSO FER (Off)	Sets high measurement limit of the Sensitivity/TDSO FER when the Confidence is set to `Off`. The allowable range is from 0.00 to 100.00% (0.01% steps).

* A changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Configuration: Test Condition (Limit) Screen (1xEV-DO)

Figure 5-74 shows the [Configuration: Test Condition (Limit)] Screen (MC-1x).

Figure 5-74 [Configuration: Test Condition (Limit)] Screen (1xEV-DO)



Softkey Menu Field

- **Print Screen**: Prints a hardcopy of the screen or stores the screen image in a USB memory device, according to the **Printer** field on the [Configuration] screen.
- **Return**: Returns to the [Configuration: Test Condition] screen.

Screen Field

The test limits are used by the Tester to judge Pass/Fail for each test in Automatic Test, Manual Test, and TX Analyzer modes. The test limits are defined independently for each combination of the CDMA Mode and the frequency band.

You can define the test limits of each test item by entering the desired value to the corresponding test limit fields (**LO Limit** and **HI Limit**).

Before entering the test limits, make sure that the CDMA Mode and the frequency band are selected correctly for the test limits you are entering.

Table 5-52[Configuration: Test Condition (Limit)] Measurement Item (1xEV-DO)

Measurement Item	Description
CDMA Mode	Sets the CDMA Mode to **MC-1x** or **1xEV-DO**.
Band	Sets the Band to either of: • B0:Cel US • B1:PCS US • B3:Cel JP • B4:PCS KR
Access Probe Power	Sets high and low measurement limits of the Access Probe Power. The allowable range is from –99.9 to +99.9 dBm in 0.1 dB steps.
Inner Loop Power(ILP)	Sets high and low measurement limits of the Inner Loop Power. The allowable range is from –99.9 to +99.9 dB in 0.01 dB steps.
Max TX Power	Sets high and low measurement limits of the Maximum Transmission Power. The allowable range is from –99.9 to +99.9 dBm in 0.01 dB steps.
Min TX Power	Sets high and low measurement limits of the Minimum Transmission Power. The allowable range is from –99.9 to +99.9 dBm in 0.01 dB steps.
Frequency Error	Sets high and low measurement limits of the Frequency Error. The allowable range is from –10000.0 to +10000.0 Hz in 0.1 Hz steps.
Multi-code Rho	Sets high and low measurement limits of the waveform quality (ρ). The allowable range is from 0.800 to 1.000 (0.001 steps).
Origin Offset	Sets high and low measurement limits of the Origin Offset. The allowable range is from –99.9 to 0.0 dBc in 0.1 dB steps.
Time Offset	Sets high and low measurement limits of the Time Offset. The allowable range is from –10.00 to +10.00 sec in 0.01 sec steps.
Sensitivity/PER Test 1 (95%)	Sets high measurement limit of the Sensitivity/PER Test 1 when the Confidence is set to 95 %. The allowable setting range is from 0.0 to 5.0% (0.5% steps).
Sensitivity/PER Test 1 (Off)	Sets high measurement limit of the Sensitivity/PER Test 1 when the Confidence is set to Off. The allowable setting range is from 0.00 to 100.00% (0.01% steps).
Sensitivity/PER Test 2 (95%)	Sets high measurement limit of the Sensitivity/PER Test 2 when the Confidence is set to 95 %. The allowable setting range is from 0.0 to 5.0% (0.5% steps).
Sensitivity/PER Test 2 (Off)	Sets high measurement limit of the Sensitivity/PER Test 2 when the Confidence is set to Off. The allowable setting range is from 0.00 to 100.00% (0.01% steps).

Table 5-52[Configuration: Test Condition (Limit)] Measurement Item (1xEV-DO)

Measurement Item	Description
Sensitivity/PER Test 3 (95%)	This item is displayed only when the **3GPP2 Config** is set to 3 or 4 (1xEV-DO Rev. A). Sets high measurement limit of the Sensitivity/PER Test 3 when the Confidence is set to 95%. The allowable setting range is from 0.0 to 5.0% (0.5% steps).
Sensitivity/PER Test 3 (Off)	This item is displayed only when the **3GPP2 Config** is set to 3 or 4 (1xEV-DO Rev. A). Sets high measurement limit of the Sensitivity/PER Test 3 when the Confidence is set to Off. The allowable setting range is from 0.00 to 100.00% (0.01% steps)

* A changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

Configuration: File Management

When the **File Management** softkey is pressed on the [Configuration] screen, the screen as Figure 5-75 is displayed. All parameter files are listed in the table.

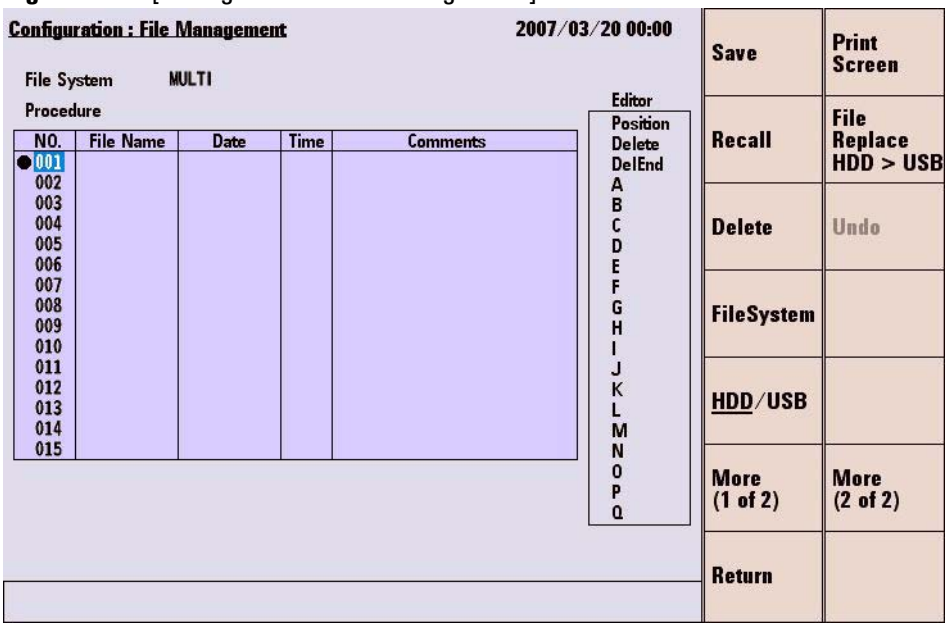
You can save or recall a parameter file to/from the following two devices:

- USB memory
- HDD in the Tester

Select the device you want to use by pressing the **HDD/USB** softkey.

NOTE If you use a USB memory device, insert a proper USB memory device into the USB Connector on the front panel of the Tester.

Figure 5-75 [Configuration: File Management] screen



Softkey Menu Field

Softkey Menu 1

- **Save**: Saves a file including all test parameters which are currently set into the HDD or a USB memory device. Refer to Saving a Test Setup File.
- **Recall**: Recall one of the test parameter files from the HDD or a USB memory device into the Tester. Refer to Saving a Test Setup File.
- **Delete**: Deletes the test parameter file selected by the CURSOR CONTROL knob. Refer to Deleting a Test Setup File.
- **File System**: Selects file system from **MULTI**, **GSM** (previous revision format) or **W-CDMA** (previous version format). When you save a test parameter file containing the cdma2000 system information, select the **MULTI**.
- **HDD/USB**: Selects the HDD in the Tester or a USB memory device.
- **More (1 of 2)**: Displays the Softkey Menu 2.
- **Return**: Returns to the [Configuration] screen.

Softkey Menu 2

- **Print Screen**: Prints a hardcopy of the screen or saves a graphic file of the screen in a USB memory device depending on the setting of the **Printer** input field on the [Configuration] screen.
- **File Replace HDD <- USB**: This is displayed when **HDD** is selected with **HDD/USB** softkey. Display the file copying screen. Refer to File Replace Confirmation screen (when HDD selected). This softkey is enabled when the following conditions are satisfied.
  - USB memory is inserted into the tester.
  - There is a test setup file on HDD.
- **File Replace HDD - > USB**: This is displayed when **USB** is selected with **HDD/USB** softkey. Display the screen to confirm file copying. Refer to File Replace Confirmation screen (USB Memory Device is selected). This softkey is enabled when the following conditions are satisfied.
  - The USB memory in which test setup files are saved using the file replace function is inserted into the tester.
- **Undo**: Displays the screen to confirm Undo (operation cancel). This softkey is enabled when the following conditions are satisfied.
  - Files already exist in the selected HDD memory.
  - Files already exist in the selected USB memory.
- **More (2 of 2)**: Returns to the Softkey Menu 1.

Message Field

When an error occurs during file copying, the following message will be displayed in the message display area.

Table 5-53 Error messages of the file management

Message	Description
Procedure file Copy failure! [xxxx]	[0000]: Copying failed.
	[0001]: Deleting failed.
	[0002]: Renaming failed.

Saving a Test Setup File

Save a new parameter file with the following procedure:

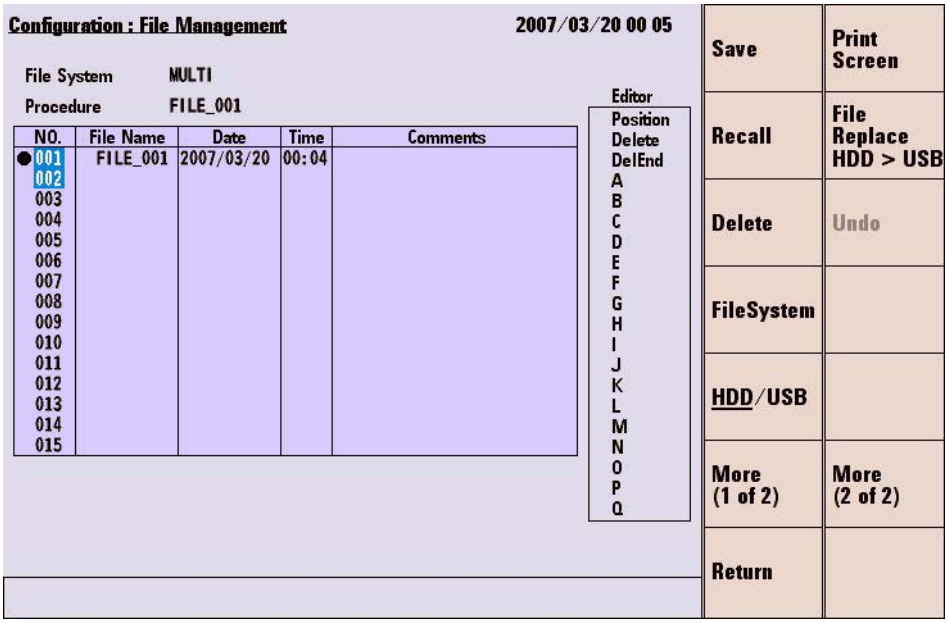
1 If you save a file including all parameters that are currently set in a USB memory device, go to step 2. Or, go to step 3 to save a file to the HDD.

2 Insert a USB memory device into the USB Connector on the front panel of the Tester.

3 Select a device you want to use to save a parameter file by toggling the **HDD/USB** softkey. The selected device, either HDD or USB, is underlined.

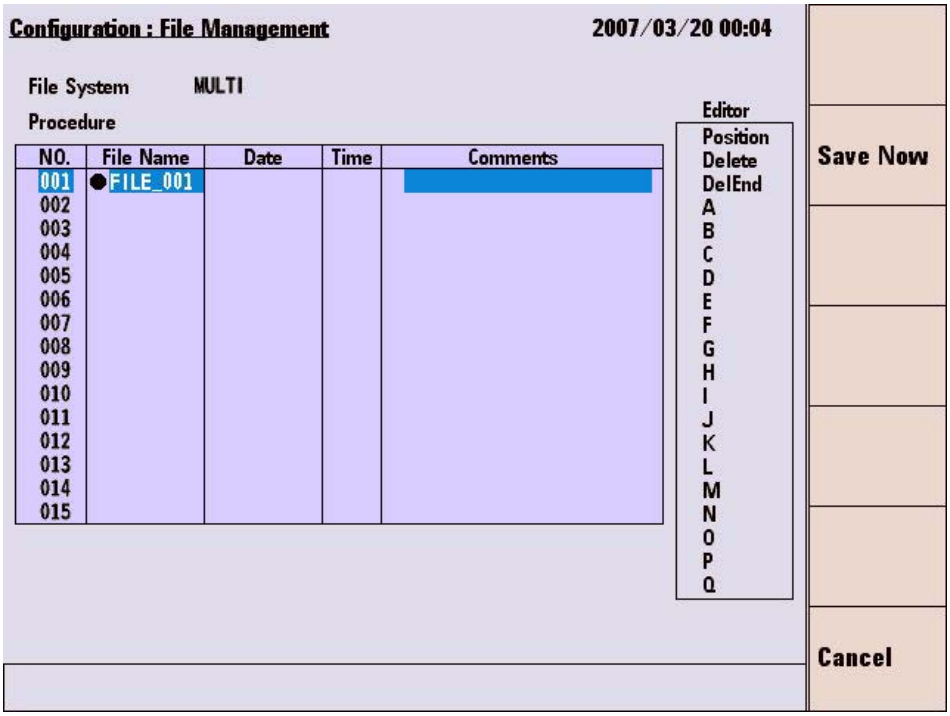
4 Move the cursor to the file number to which you want to save a new test parameter file.

Figure 5-76 [Configuration: File Management] Save-1 Screen



5 Press the **Save** softkey. The **File Name** and **Comment** fields are highlighted, and the cursor is placed at the **File Name** field. A default file name will be automatically displayed in the **File Name** field. If you want to change the file name, go to step 6. If you do not change the file name, go to step 9.

Figure 5-77 [Configuration: File Management] Save-2 screen

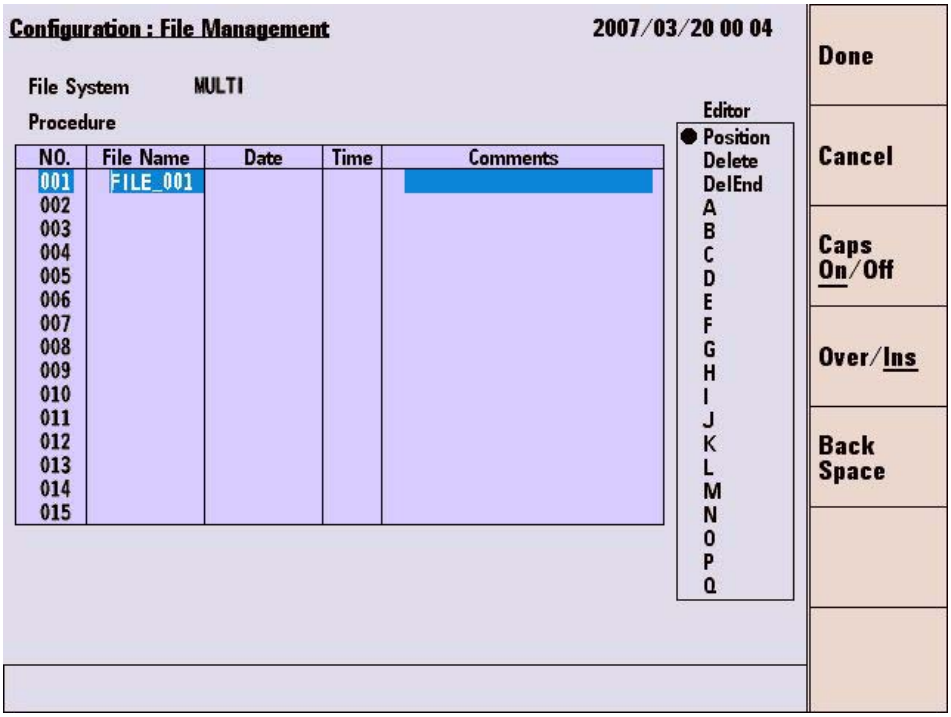


Softkey Menu

- **Save Now**: Saves the parameter file in the HDD or USB memory device. Press this softkey after entering a filename and comment.
- **Cancel**: Cancels saving and returns to the screen in step 4.

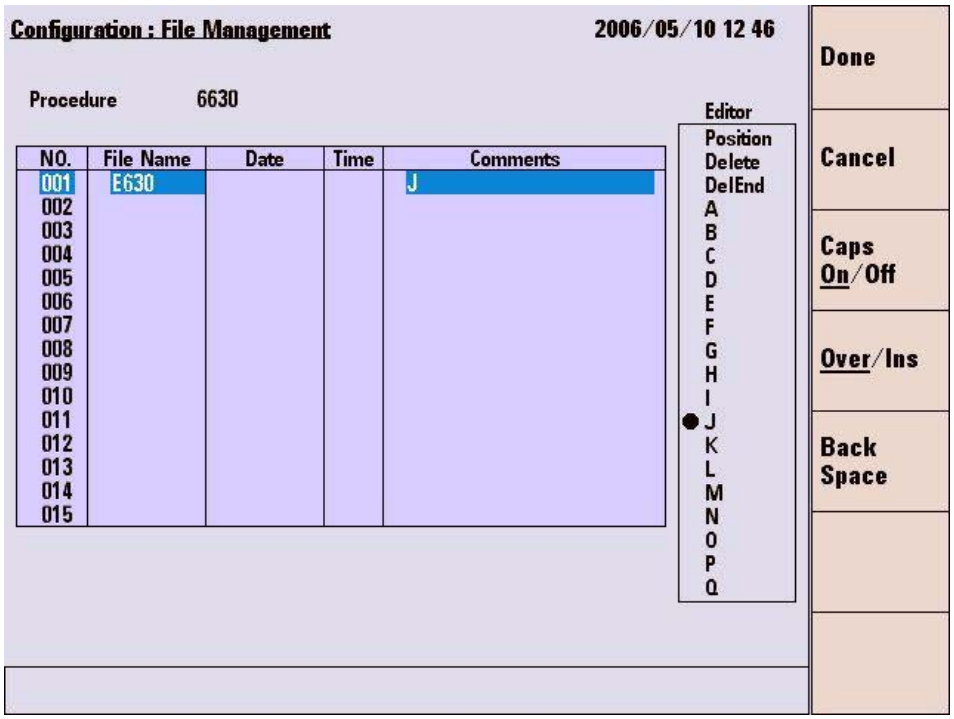
6 Change the file name.
Press the CURSOR CONTROL knob once to activate the **Editor** scrolling field. The rectangular cursor is placed at the first position of the **File Name** field enabling you to enter the first character of the filename.

Figure 5-78 [Configuration: File Management] Save-3 screen



7 Turn or press the CURSOR CONTROL knob to select alphanumeric characters and symbols and edit the file name.

Figure 5-79 [Configuration: File Management] Save-4 screen



Softkey Menu

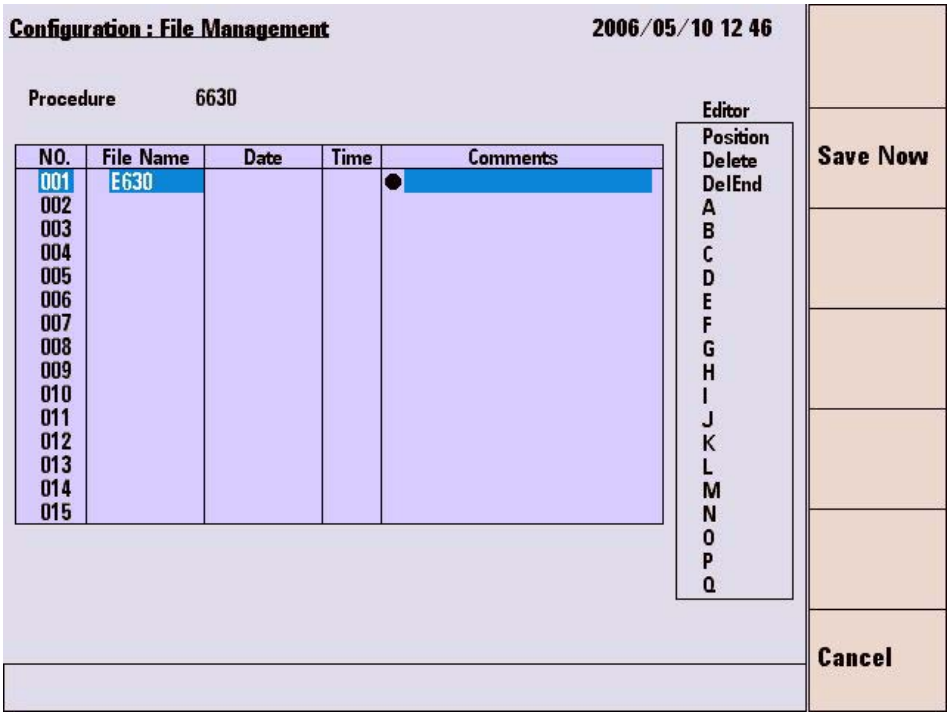
- **Done**: Determines the words entered.
- **Cancel**: Cancels editing.
- **Caps On/Off**: Selects upper case or lower case of characters.
  - `On`: Selects upper case character
  - `Off`: Selects lower case character
- **Over/Ins**: Selects `Over` (overwrite) or `Ins` (insert).
  - `Over`: Overwrite (erase and replace) characters selected.
  - `Ins`: Insert characters at the position of the rectangular cursor without erasing the existing characters.
- **Back Space**: Erases a character at the left side of the rectangular cursor.

8 Press the **Done** softkey to enter the filename edited.

9 Create a comment.
Move the cursor to the **Comment** field and press it once. The

rectangular cursor is placed at the first position of the **Comment** field enabling you to enter the first character of a comment. Create a comment with similar operation to that for editing a file name. Refer to step 7 and step 8 to complete creating a comment.

Figure 5-80 [Configuration: File Management] Save-5 screen



Softkey Menu

- **Save Now**: Executes saving.
- **Cancel**: Cancels entering and returns to the screen in step 5.

10 After entering the new file name and comment, press the **Save Now** softkey to execute saving.

11 When the file has been successfully saved, a new file name appears in the table. The file saving date and time data obtained from the internal clock of the tester will be automatically displayed.

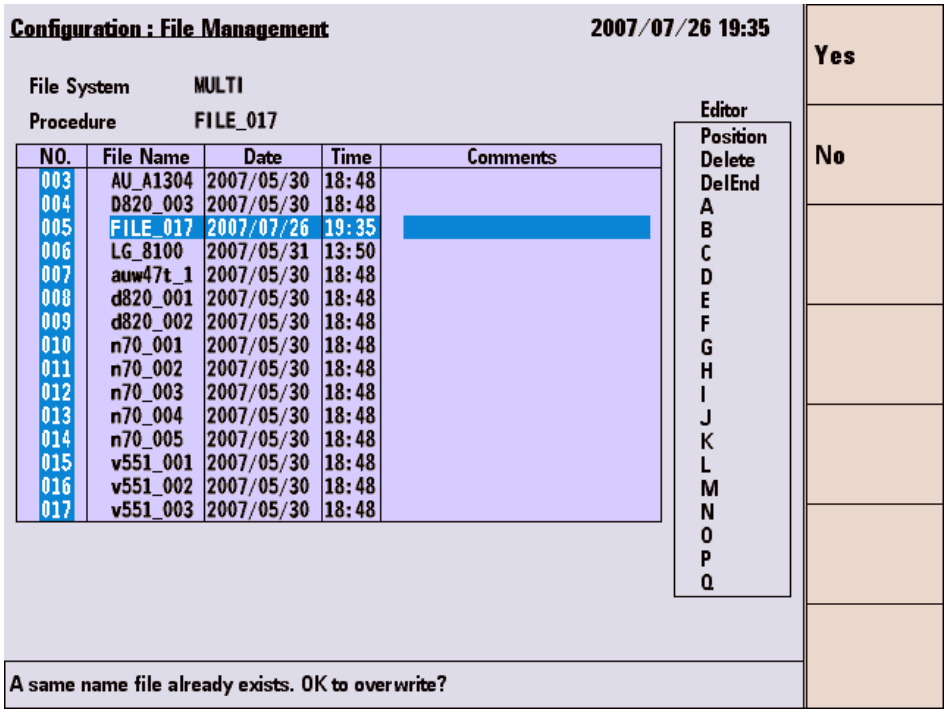
NOTE

Remove the USB memory device after returning to the [Configuration] screen by pressing the **Return** softkey.

The USB memory device should not be removed while the [File Management] screen is displayed. Otherwise, the parameter files may be damaged.

Confirmation message as Figure 3.81 is displayed when you select an existing file and save it as the same file name.

Figure 5-81 [Configuration: File Management] Overwrite Screen



Softkey menu

- **Yes**: Executes saving.
- **No**: Cancels saving and returns to step 4.

Message Field

The following message is displayed in the message field.

A same name file already exists. Ok to save?

Calling up a test setup file

Call up a test setup file in the following procedure.

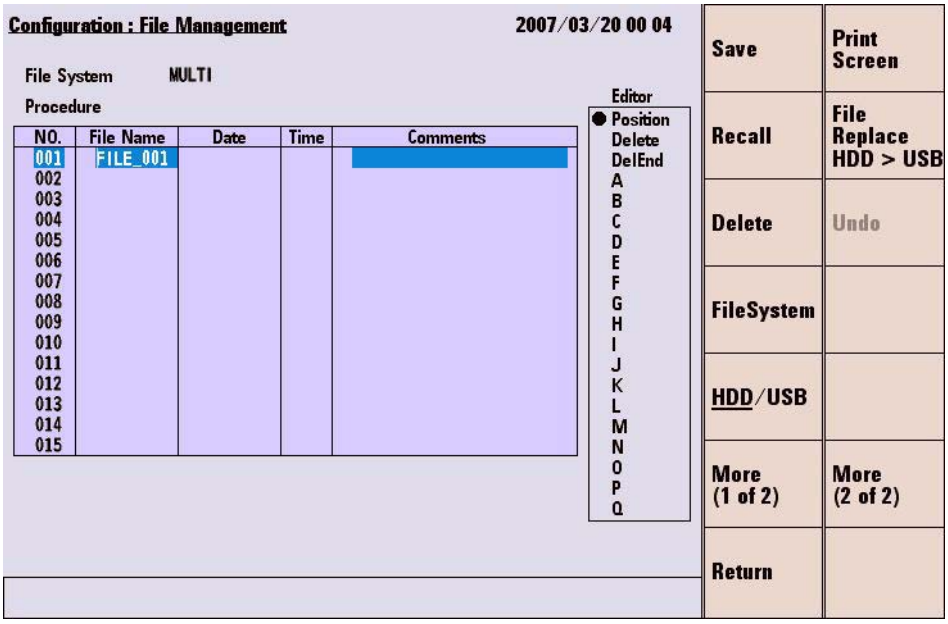
1 If you recall a file containing test parameters from a USB memory device, go to step 2. Or, go to step 3 to recall a file from the HDD.

2 Insert a USB memory device into the USB Connector to obtain the parameter file list.

3 Select a device you use to recall a test parameter file by pressing the **HDD/USB** softkey. The selected device, either HDD or USB, is underlined.

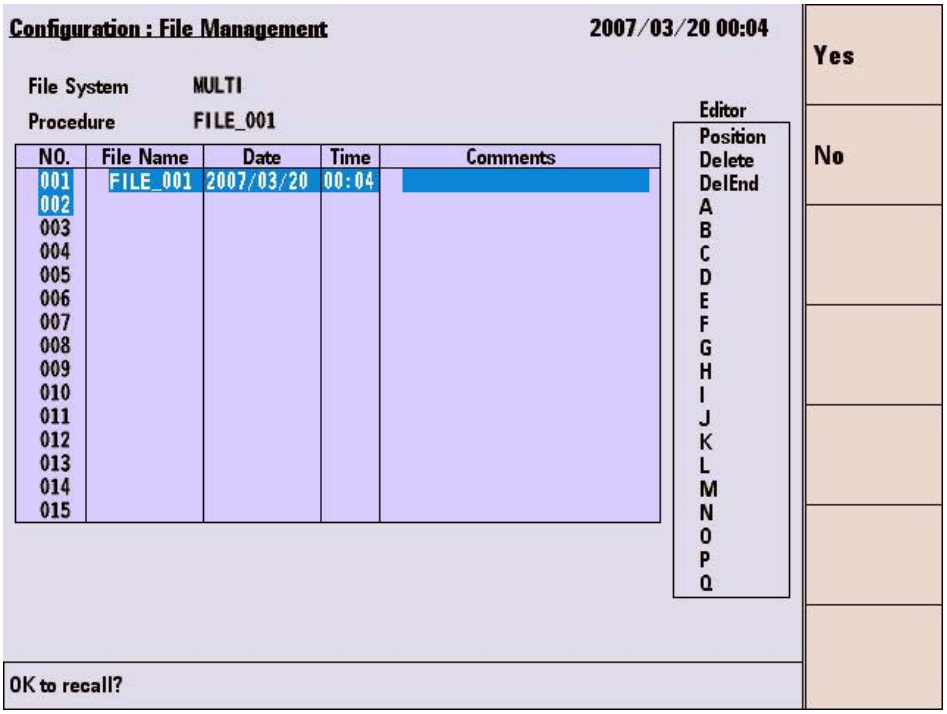
4 Move the cursor to the file number to which you want to recall the test parameter file.

Figure 5-82 [Configuration: File Management] Call up-1 screen



5 Press the **Recall** softkey, and then the **File Name**, **Date**, **Time** and **Comment** fields are highlighted.

Figure 5-83 [Configuration: File Management] Call up-2 screen



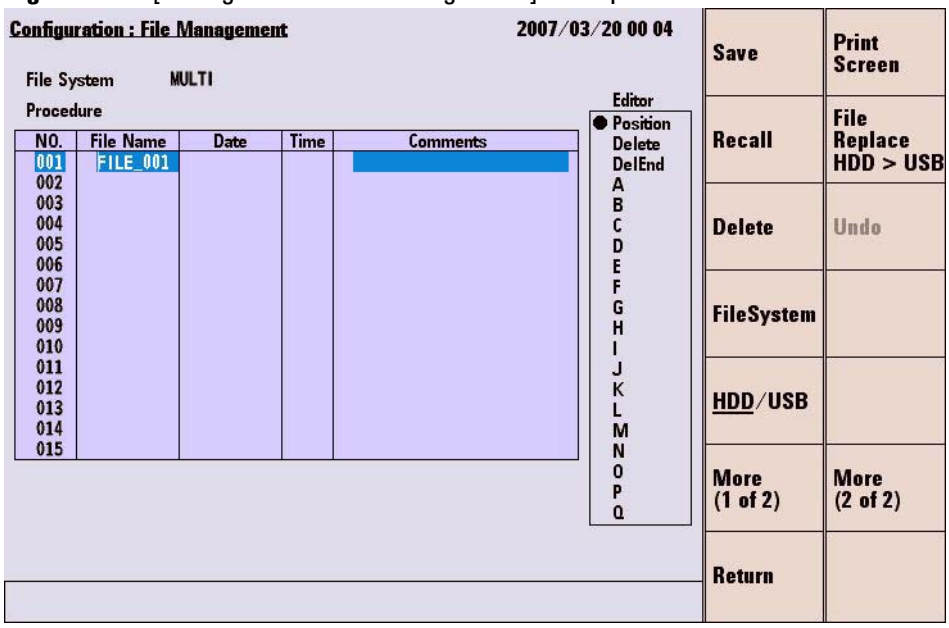
Softkey

- **Yes**: Executes restoring the parameter file.
- **No**: Cancels recalling the parameter file and returns to step 4.

6 Respond to the operation message **Ok to recall?** in the message field by pressing the **Yes** softkey. If there is something to revise, press the **No** softkey to go back to step 4.

7 When the file has been called up properly in the tester, the file name is displayed in the **Procedure** area on the table. The cursor is placed next to the file number. The softkey menu returns to the initial menu.

Figure 5-84 [Configuration: File Management] Call up-3 screen



NOTE

Remove the USB memory device after returning to the [Configuration] screen by pressing the **Return** softkey.

The USB memory device should not be removed while the [File Management] screen is displayed. Otherwise, the parameter files may be damaged.

Deleting a Test Setup File

Delete one of the parameter files with the following procedure:

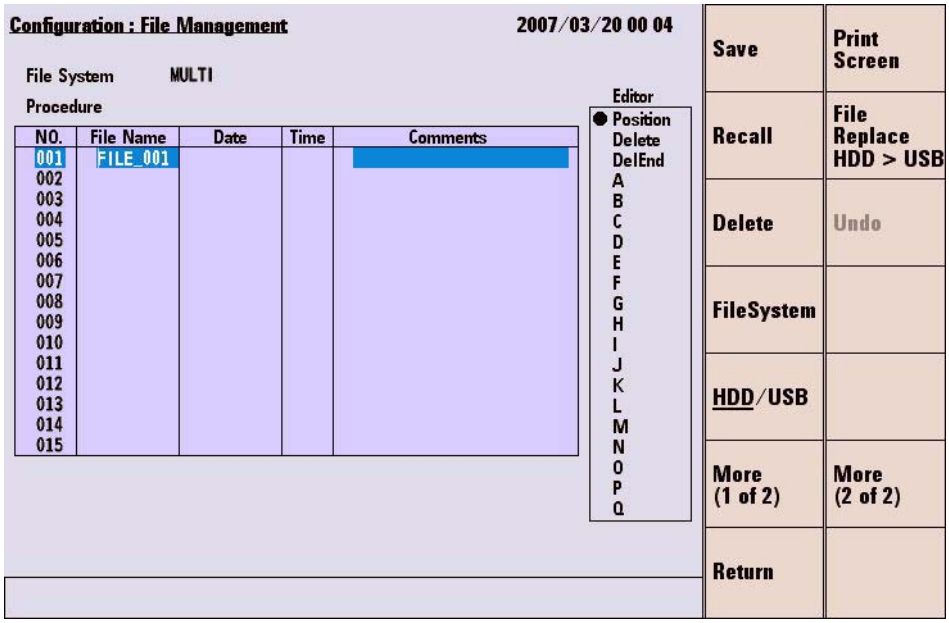
1 If you delete a file containing test parameters from a USB memory device, go to step 2. Or, go to step 3 to delete a file from the HDD.

2 Insert a USB memory into the USB connector on the front panel of the tester.

3 Select a device which you want to delete the test parameter file by pressing the **HDD/USB** softkey. The selected device, either HDD or USB, is underlined.

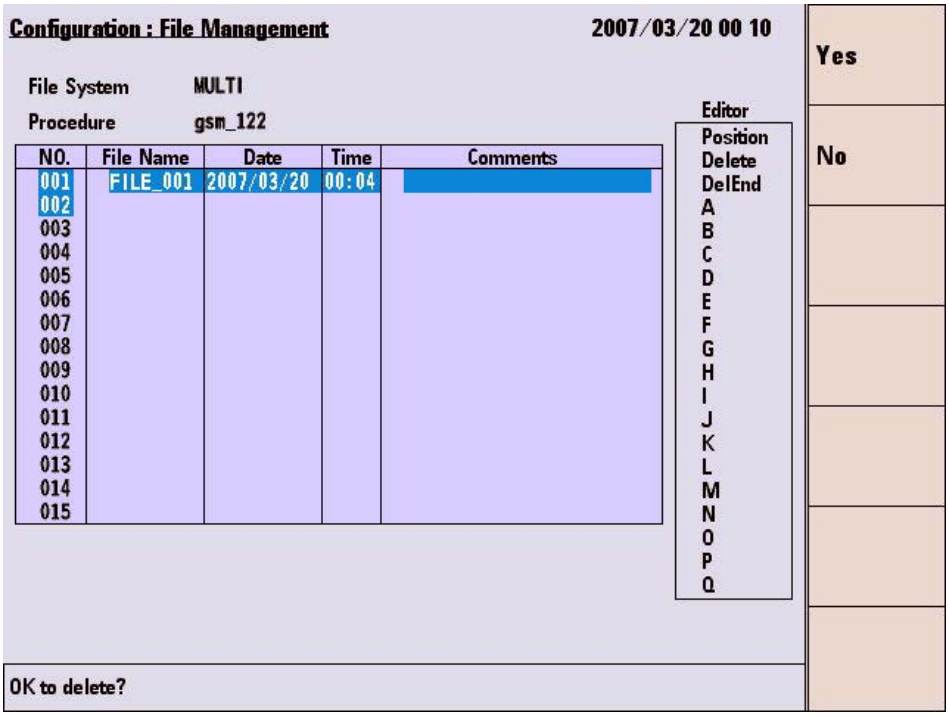
4 Move the cursor to the file number of which you want to delete the test parameter file.

Figure 5-85 [Configuration: File Management] Delete-1 screen



5 Press the **Delete** softkey, and then the **File Name**, **Date**, **Time** and **Comment** fields are highlighted.

Figure 5-86 [Configuration: File Management] Delete-2 screen



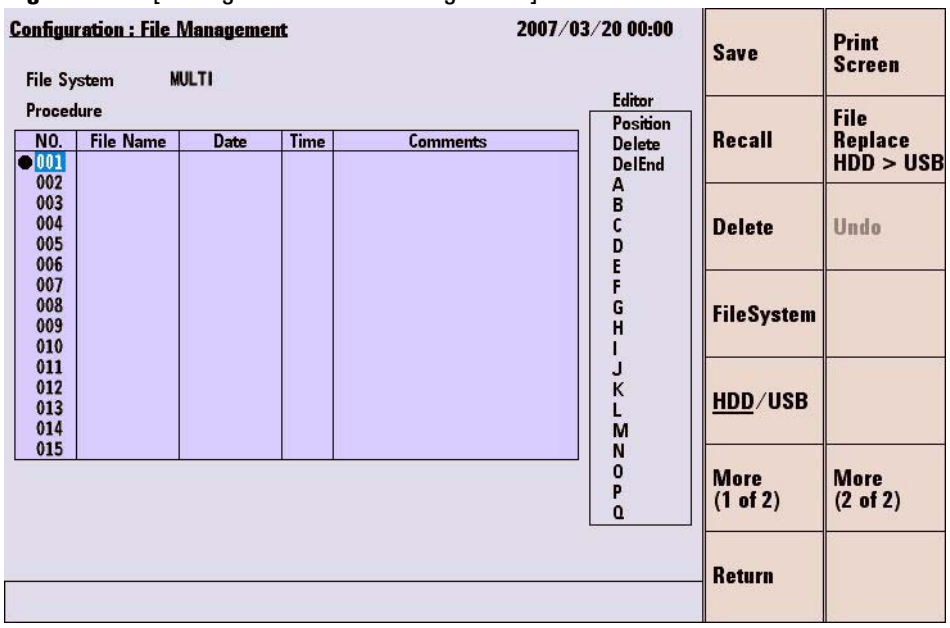
Softkey

- **Yes**: Executes deleting the parameter file.
- **No**: Cancels deleting the parameter file and returns to step 4.

6 Respond to the operation message **Ok to delete?** in the message field by pressing the **Yes** softkey. Or, press the **No** softkey to go back to step 4.

7 When the file is successfully deleted, the file disappears and the softkey menu returns to the initial menu.

Figure 5-87 [Configuration: File Management] Delete-3 screen



NOTE

Remove the USB memory device after returning to the [Configuration] screen by pressing the **Return** softkey.

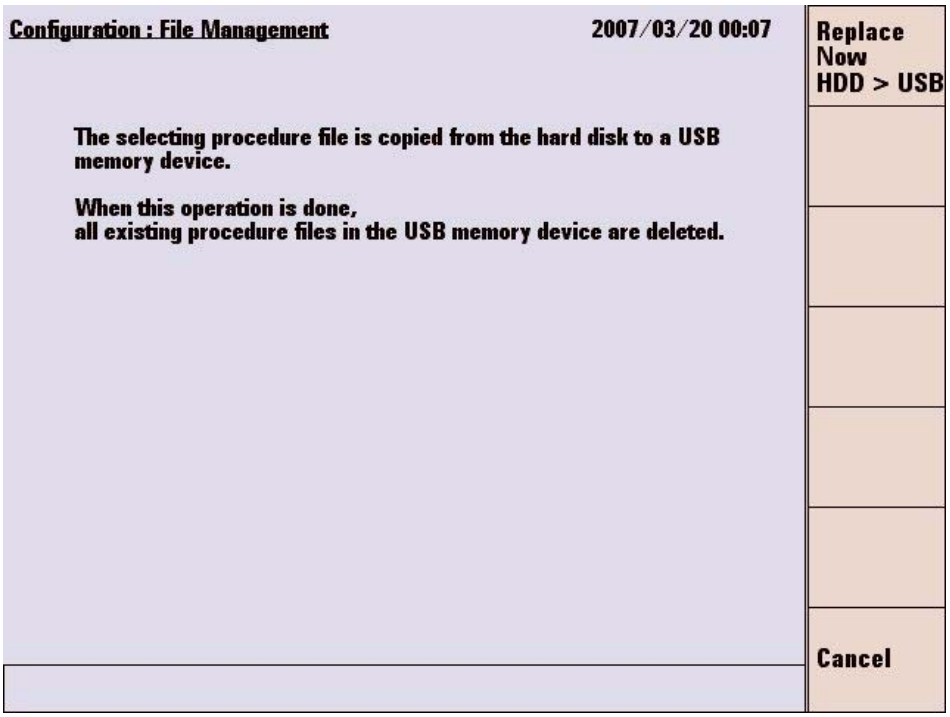
The USB memory device should not be removed while the [File Management] screen is displayed. Otherwise, the parameter files may be damaged.

File Replace Confirmation screen (when HDD selected)

When copying all the test parameter files to a USB memory device, select the **HDD** with the **HDD/USB** softkey, and then, press the **More (1 of 2)** and **File Replace HDD > USB** softkeys on the [Configuration: File Management] screen. Then, the confirmation screen shown in this Figure 5-88 is displayed.

NOTE After this operation, all existing test parameter files in the USB memory device are deleted.

Figure 5-88 File Replace Confirmation screen (HDD)


Configuration : File Management
2007/03/20 00:07
The selecting procedure file is copied from the hard disk to a USB memory device.
When this operation is done,
all existing procedure files in the USB memory device are deleted.
Replace Now HDD > USB
Cancel

Softkey Menu Field

Softkey Menu

- **Replace Now HDD > USB**: Copies all the test parameter files from the HDD to a USB memory device.
- **Cancel**: Cancels copying and returns to the [Configuration: File Management] screen as Figure 5-75.

Screen Field

The following message appears in the message display area.

The selecting procedure file is copied from the hard disk to a USB memory device. When this operation is done, all existing procedure files in the USB memory device are deleted.

NOTE

If you have saved a new file in the USB memory containing some files copied before, you can restore previous test setup files using the Undo function. Refer to Undo Confirmation screen (when USB memory selected) for details.

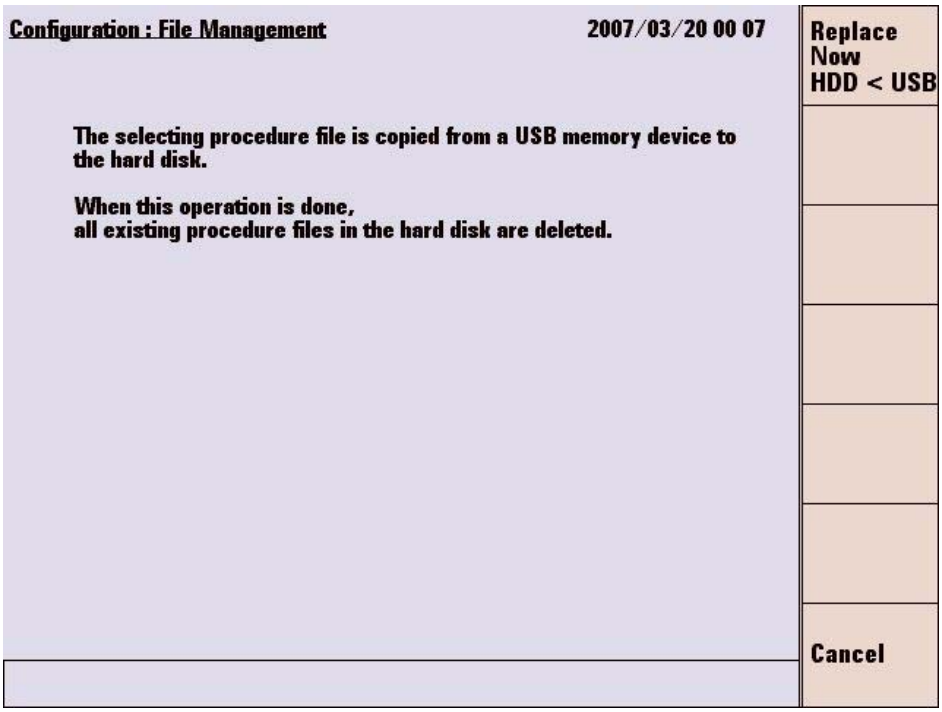
If copying failed, the [File Management] screen is resumed and an error message is displayed in the message display area. Refer to Table 5-53, “Error messages of the file management,” on page 173.

File Replace Confirmation screen (USB Memory Device is selected)

When you select **USB** memory on the [File Management] screen, press the **File Replace HDD < USB** softkey to copy the test setup file from USB memory to HDD. Then, the confirmation screen shown in this Figure 5-89 is displayed.

NOTE After this operation, all existing test parameter files in the HDD are deleted.

Figure 5-89 File Replace Confirmation screen (when USB memory selected)


Configuration : File Management
2007/03/20 00 07
The selecting procedure file is copied from a USB memory device to the hard disk.
When this operation is done,
all existing procedure files in the hard disk are deleted.
Replace Now HDD < USB
Cancel

Softkey Menu Field

Softkey Menu

- **Replace Now HDD < USB**: Copies all the test parameter files from the USB memory device to the HDD.
- **Cancel**: Cancels copying and returns to the [Configuration: File Management] screen as Figure 5-75.

Screen Field

The following message appears in the message display area.

The selecting procedure file is copied from a USB memory device to the hard disk. When this operation is done, all existing procedure files in hard disk are deleted.

NOTE

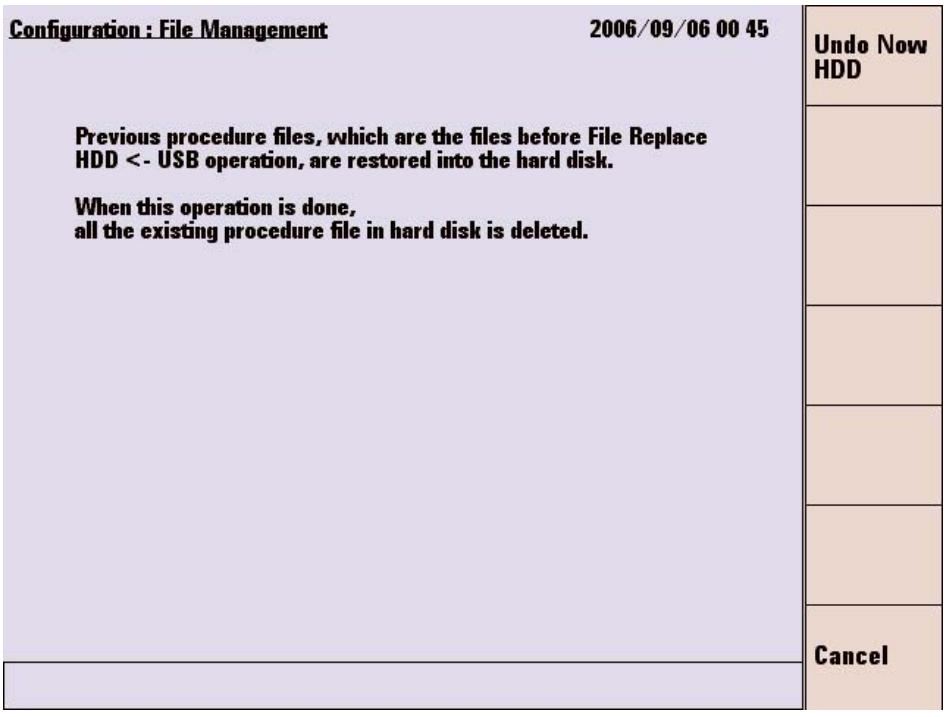
If you have saved a new file on the HDD containing some files copied before, you can restore previous test setup files using the Undo function. Refer to Undo Confirmation screen (when HDD selected) for details.

If copying failed, the [File Management] screen is resumed and an error message is displayed in the message display area. Refer to Table 5-53, "Error messages of the file management," on page 173.

Undo Confirmation screen (when HDD selected)

When you select **HDD** device on the [File Management] screen, press the **Undo** softkey to restore the test setup file to the previous condition. Then, the confirmation screen shown in this Figure 5-90 is displayed.

Figure 5-90 Undo Confirmation Screen (when HDD selected)


Configuration : File Management
2006/09/06 00 45
Previous procedure files, which are the files before File Replace HDD <- USB operation, are restored into the hard disk.
When this operation is done, all the existing procedure file in hard disk is deleted.
Undo Now HDD
Cancel

Softkey Menu Field

Softkey Menu

- **Undo Now HDD**: Restores all the test parameter files in the HDD before the file replace operation was executed. After this operation, all existing test parameter files in the HDD are deleted.
- **Cancel**: Cancels Undo and returns to the [Configuration: File Management] screen as Figure 5-75.

Screen Field

The following message appears in the message display area.

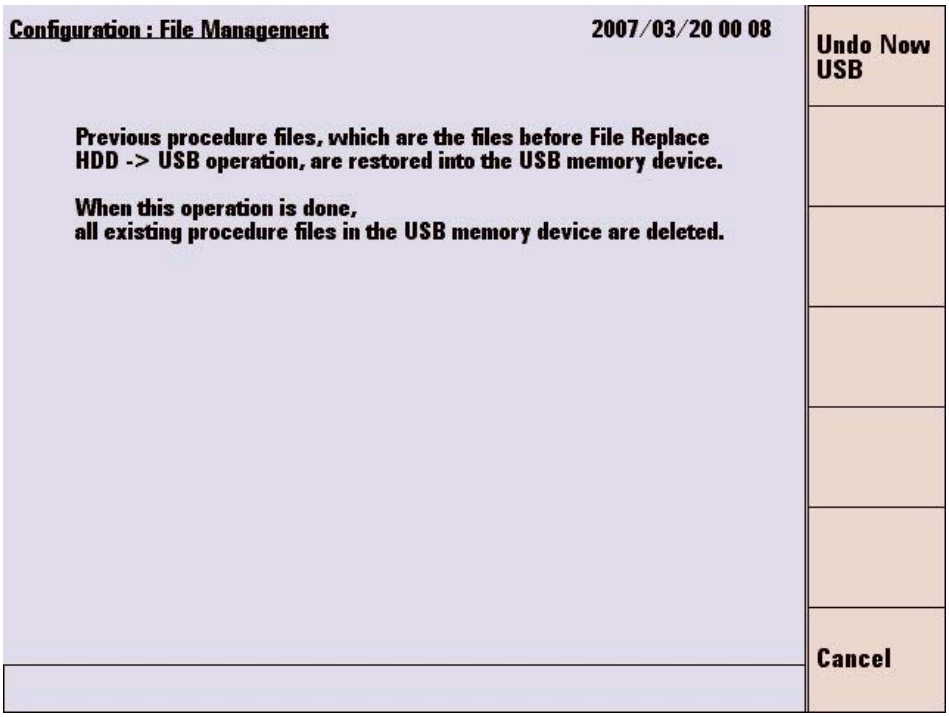
Previous procedure files, which are the files before File Replace HDD <– USB operation, are restored into the hard desk.

When this operation is done, all existing procedure files in the hard disk are deleted.

Undo Confirmation screen (when USB memory selected)

You can restore all replaced files using Undo function when you replaced all the test parameter files from the HDD to a USB memory device. Select the **USB** with the **HDD/USB** softkey, and then, press the **More (1 of 2)** and **Undo** softkeys on the [Configuration: File Management] screen. Undo Screen (USB memory device is selected) shown in Figure 5-91 is displayed.

Figure 5-91 Undo Confirmation screen (when USB memory selected)


Configuration : File Management
2007/03/20 00 08
Previous procedure files, which are the files before File Replace HDD -> USB operation, are restored into the USB memory device.
When this operation is done, all existing procedure files in the USB memory device are deleted.
Undo Now USB
Cancel

Softkey Menu Field

Softkey Menu

- **Undo Now USB**: Restores all the parameter files in the USB memory device before the file replace operation was executed. After this operation, all existing test parameter files in the USB memory device are deleted.
- **Cancel**: Cancels Undo and returns to the [Configuration: File Management] screen as Figure 5-75.

Screen Field

The following message appears in the message display area.

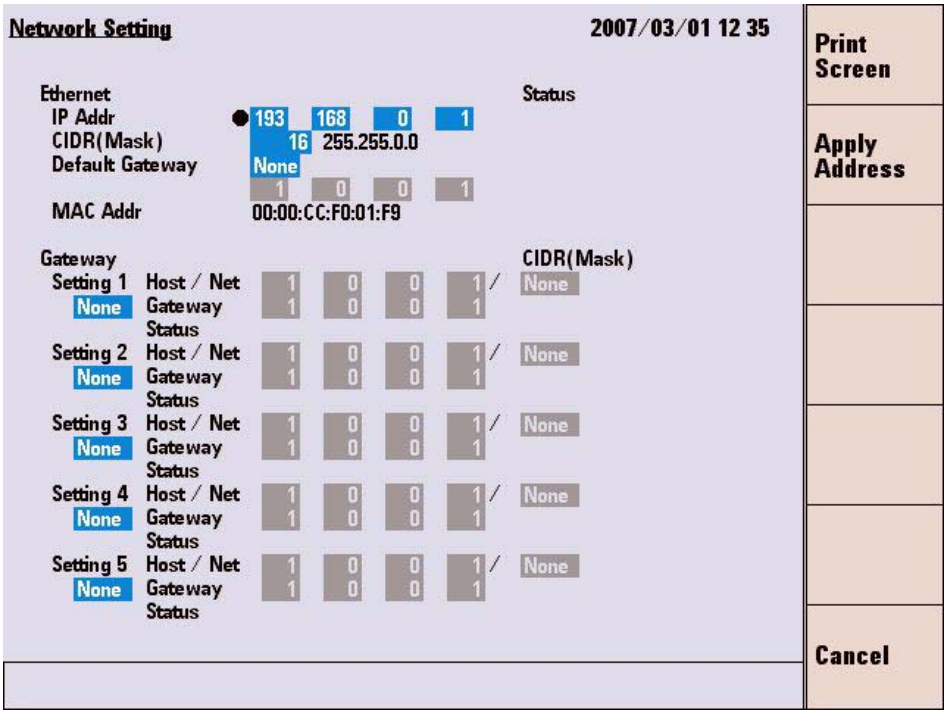
Previous procedure files, which are the files before File Replace HDD –> USB operation, are restored into the USB memory device.

When this operation is done, all existing procedure files in the USB memory device are deleted.

Configuration: Network Setting

When the **Network Setting** softkey on the [Configuration] screen is pressed, the [Network Setting] screen as shown in Figure 5-92 appears.

Figure 5-92 [Configuration: Network Setting] screen



Softkey Menu Field

Softkey Menu

- **Print Screen**: Prints the hard-copy of the screen or stores the screen image in the USB memory, according to the **Printer** setting on the [Configuration] screen.
- **Apply Address**: Applies the changes in **IP Addr**, **Mask**, **Default Gateway**, **Host/Net**, **Gateway**, and **CIDR** to the Tester. The softkeys on the [Network Setting] screen that is in the initial display state are not available. They become available when the changes to the settings are detected, and become unavailable again when the address configuration is finished.
- **Cancel**: Returns to the [Configuration] screen. Restore set values before pressing the **Apply Address** softkey to those before the change.

Screen Field

Set the input items required to execute tests, referring to the description shown in Table 5-54.

Table 5-54[Configuration: Network Setting] screen

Input Item	Description

IP Addr	Set an IP address of the Tester. Possible values are as follows:
	Allowable range of address values
	• 1.0.0.1 to 223.255.255.255 (From 192.168.1.1 to 192.168.1.255 are unavailable to setting.)
	  • The IP address setting supports Class A through C.
	  • It does not support Class D (multicast address) or Class E (reserved address).
	  • The factory default IP address is `192.168.0.1`.
	  • If setting an IP address fails, `Invalid` will be displayed in the Status section.
	  • Changes to the IP address will be effective only after pressing the **Apply Address** softkey.

CIDR (Mask)	Set a subnet mask in CIDR format. Possible values are as follows:
	Allowable range of address values:
	• 1 to 31
	  • The factory default mask value is 24 (255.255.255.0).
	  • If setting a mask value fails, **Invalid** will be displayed in the Status section.
	  • Changes to the mask value will be effective only after pressing **Apply Address** softkey.
	Refer to Appendix B General information on cdma2000 system for details.

Default Gateway	Set valid/invalid of the default gateway and the address. The allowable setting range is as follows:
	Flag setting range:
	• `None`: Do not set the default gateway.
	• `ACT`: Set the default gateway.
	  • When you select `None`, you cannot select the address setting frame.
	Allowable range of address values:
	• 1.0.0.1 to 223.255.255.255 (From 192.168.1.1 to 192.168. 1.255 are unavailable to setting.)
	  • The IP address setting supports Class A through C.
	  • It does not support Class D (multicast address) or Class E (reserved address).
	  • The default gateway is valid only when you specify IP in the subnet set by IP Addr/Mask within the address setting range.
	  • **Unreachable** is displayed in the Status field when you specify an address outside the subnet.
	  • If the Default Gateway is set to `None` when booting, the address is displayed as (0.0.0.0), which means invalid.
	  • If an error occurs in setting the default gateway, **Invalid** is displayed in the Status field.
	  • Changes to the default gateway will be effective only after pressing the **Apply Address** softkey.

Table 5-54[Configuration: Network Setting] screen (continued)

Input Item	Description
Setting 1 through 5	Set `Act/None` (active/inactive) of the gateway and the address. The allowable range is as follows: Possible flag values: • `None`: A default gateway should not be set. • `ACT`: A default gateway should be set. • If you select `None`, the field to set an address will be grayed out and cannot be selected. • For description on the Host/Net address, the Gateway address, and the mask value (when Net is specified), refer to **Host/Net**, **Gateway**, and **CIDR (Mask)** sections in this table, respectively.

Host/Net	Set the Host/Net addresses for Setting 1 through 5. Possible values are as follows:
	Allowable range of address values
	• When Host is specified (CIDR=None): 1.0.0.1 to 223.255.255.255 (From 192.168.1.1 to 192.168.1.255 are unavailable to setting).
	• When Net is specified (other than CIDR=None): 1.0.0.0 to 223.255.255.255 (From 192.168.1.1 to 192.168.1.255 are unavailable to setting).
	  • The IP address setting supports Class A through C.
	  • It does not support Class D (multicast address) or Class E (reserved address).
	  • If setting a gateway fails, **Invalid** will be displayed in the Status section.
	  • Changes to the Host/Net takes effect after the Apply Address softkey is pressed.
	  • If you specified Net and set the address to 1.0.0.0, the address will be corrected automatically to 1.0.0.1 when you change the setting to specify Host.
	  • If the CIDR is set to `None`, the setting for Host/Net will be treated as a Host address.
	  • If the CIDR is set to other than `None`, the setting for Host/Net will be treated as a Net address.
	• In this case, the Host-ID part of an address specifies 0. If it specifies other than 0, **Invalid** will be displayed in the Status section.

Gateway	Set the gateway addresses for Setting 1 through 5. Possible values are as follows:
	Possible values for the addresses:
	• 1.0.0.1 to 223.255.255.255 (From 192.168.1.1 to 192.168.1.255 are unavailable to setting).
	  • The IP address setting supports Class A through C.
	  • It does not support Class D (multicast address) or Class E (reserved address).
	  • A gateway setting is valid only when you set an IP address that is in the range stated above and belongs to the subnet set in the IP Addr/Mask.
	  • If the Gateway setting is disabled when booting, the address will be displayed as (0.0.0.0), which means invalid.
	  • If you set an address that does not belong to the subnet, **Unreachable** will be displayed in the Status section.
	  • Changes to the Gateway setting takes effect only after the **Apply Address** softkey is pressed.

Table 5-54[Configuration: Network Setting] screen (continued)

Input Item	Description

CIDR	Set masks (in CIDR format) for Setting 1 through 5. Possible values are as follows:
	Possible values for CIDR:
	• None
		1 to 31
		  • If the **CIDR** is set to `None`, the value that is set in **Host/Net** will be treated as a Host address.
		  • If the **CIDR** is set to other than `None`, the value that is set in **Host/Net** will be treated as a Net address.
		  • If the **Gateway** setting is disabled when booting, **None** will be displayed in the **CIDR** section.
		  • Changes to the mask setting is effective after pressing the Apply Address softkey. Refer to Appendix A Input Items and Allowable Options or Ranges for details.

A changing magnification softkey is available. Refer to Storing Numeric Values on page 4-10 and Changing Magnification Softkey on page 4-13.

In addition, this screen displays the following information:

MAC address

Status: Shows how each address is configured.

- If any abnormality is detected in the IP Addr/Mask setting, **Invalid** is displayed.
- If any abnormality is detected in the Default Gateway setting, **Invalid** is displayed.
- If the Tester and the Default Gateway does not belong to the same network, **Unreachable** is displayed.

6 Troubleshooting

Items to be checked 6-2
Error Information 6-4

This chapter describes solutions for troubles and error information displayed on the screen.

Items to be checked

The symptoms listed below may not be caused by Tester failure.

Check the following items before requesting repair. Also, refer to the *N9360A Multi UE Tester Installation Guide*.

Table 6-1 Items to be checked

Symptom	Section to be checked	Remedy
The Tester is not activated. A message **ERROR!! 0000 1002 Unit initialization failure.** is displayed on screen.	Is the external reference signal connected correctly?	When the **Reference** on the [Configuration] screen is set to `External`, the Tester is not activated unless 10 MHz reference signal is inputted to the Reference IN connector on the rear panel. Connect 10 MHz reference signal to the Reference IN connector and then reboot the Tester.
Location registration is not successful.	Is BS level appropriate?	Set BS level to an appropriate value.
	Is it affected by the external noise?	Block the external noise using a shield case, etc.
	Is the path loss set correctly?	Set the path loss between the mobile phone and the Tester with **Loss** appropriately on the [Configuration: Test Condition (Loss)] screen.
	Is the RFCH set correctly?	Confirm the band and the RFCH that are supported to the mobile phone. And, set the band and the RFCH properly.
	Is the Bas Station set correctly?	In the MC-1x mode, set the NID and the SID properly on the [Configuration: Test Condition] screen.
Connection is lost in the FER or PER measurement	Is BS level too weak?	In the MC-1x mode, set the FER BS Level, in the 1xEV-DO mode, set the PER BS Level to appropriate value.
	Is it affected by the external noise?	Shut out external noise by using the shield case, etc.
	Is the path loss set correctly?	Set the path loss between the mobile phone and the tester correctly in the **Loss** field on the [Configuration: Test Condition (Loss)] screen.
A radio performance test fails.	Is it affected by the external noise?	Shut out external noise by using the shield case, etc.
	Is the path loss set correctly?	Set the path loss between the Tester and the mobile phone correctly in the **Loss** field on the [Configuration: Test Condition (Loss)] screen.
Connection is lost in the Min TX Power measurement.	Is BS level too weak?	Set the Min Tx Power BS Level to appropriate value.

Table 6-1 Items to be checked

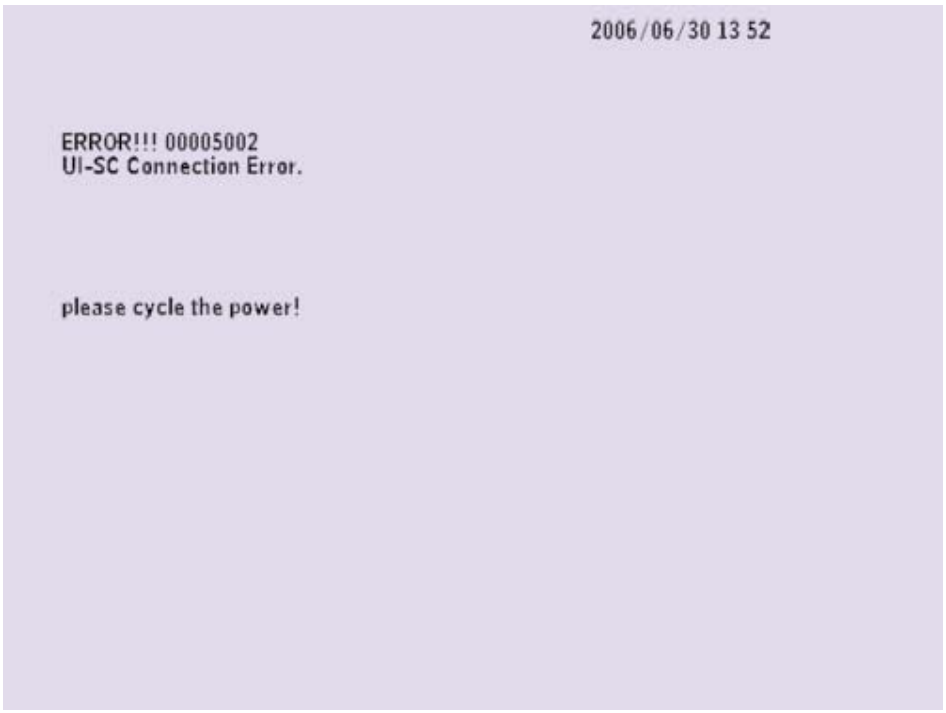
Symptom	Section to be checked	Remedy
	Is the Call Drop Timer set to `Off`?	Set the Call Drop Timer to `On`.
	Is there interference from the external noise?	Shut out external noise by using the shield case, etc.
	Is the path loss set correctly?	Set the path loss between the Tester and the mobile phone correctly in the **Loss** field on the [Configuration: Test Condition (Loss)] screen.
Connection is lost in the Max TX Power measurement.	Is BS level too weak?	Set the Max Tx Power BS Level to appropriate value.
	Is the Call Drop Timer set to `Off`?	Set the Call Drop Timer to `On`.
	Is there interference from the external noise?	Shut out external noise by using the shield case, etc.
	Is the path loss set correctly?	Set the path loss between the Tester and the mobile phone correctly in the **Loss** field on the [Configuration: Test Condition (Loss)] screen.

Error Information

Error Screen

Figure 6-1 is an example of the screen that is displayed when an error occurs. The output device (EPSON PM-G800 or USB Memory) is displayed on the lower right corner of the screen when pressing the **Print Screen** softkey.

Figure 6-1 An example of [Error] screen



Softkey Menu

Print Screen: Prints a hardcopy of the screen or stores the screen image in a USB memory device, according to the **Printer** field on the [Configuration] screen.

Debug Data > USB: Outputs debug data into a USB memory device.

Error codes displayed on error screens

Table 6-2 and Table 6-3 list error codes for [Error] screens. If the following guidelines do not help you to remove the errors, contact the Agilent Sales Department or an authorized distributor.

Table 6-2 Alarm Notification Error Code

Error Code	Error Content	Action
0000	Abnormal internal temperature	Turn off power and disconnect the AC plug and contact our sales department or authorized distributor.
0001	The cooling fan stopped.	
0002	Synthesizer unlock (Tx1)	The internal reference signal generation circuit may be out of order. Turn off power and disconnect the AC code and contact our sales department or authorized distributor. If you use the external reference signal, check if it is connected correctly.
0003	Synthesizer unlock (Tx2)	
0004	Synthesizer unlock (Tx3)	
0005	Synthesizer unlock (Rx1)	
0006	Synthesizer unlock (Rx2)	
0007	ALC alarm (Tx1)	A hardware error occurred. Reboot the Tester.
0008	ALC alarm (Tx2)	
1000	Unit reboot is detected.	A firmware error occurred. Reboot the Tester.
1001	Unit fatal error	
1002	Unit initialization failure	
1005	No indispensable file	
1010	Receiving NAK from RF-CPU	
2000	No MS configuration information	
2002	No scenario	
2003	Scenario read error	

Table 6-2 Alarm Notification Error Code

Error Code	Error Content	Action
5001	Time out for waiting for reception of SC response	A firmware error occurred. Reboot the Tester.
5002	Connecting failure with SC	
5003	Socket disconnection between UI and SC	
5004	SC transmission failure	
5100	UI timer processing error (0: other errors)	
5101	UI timer processing error (1: existence of the timer number)	
5102	UI timer processing error (2: No relevant timer number for stop order)	
5200	UI internal error	
6000	UI firmware update error	
6100	UI procedure file Check Sum Error	

Table 6-3 UI Timer Error Code

Error Code	Error Content	Action
3001	Scenario execution failure because of a hardware error	A firmware error occurred. Reboot the Tester.
5001	Time out for waiting for reception of SC response	
5002	Connecting failure with SC	
5003	Socket disconnection between UI and SC	
5004	SC transmission failure	
5100	UI timer processing error (0: other errors)	
5101	UI timer processing error (1: existence of the timer number)	

Table 6-3 UI Timer Error Code

Error Code	Error Content	Action
5102	UI timer processing error (2: No relevant timer number for stop order)	
5200	UI internal error	
6000	UI firmware update error	
6100	UI procedure file Check Sum Error	

SC: The application module in the tester

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7
Performance and Specifications

Measurement Performance 7-2

This chapter lists the performance and specifications of the *N9360A Multi UE Tester CDMA2000 User Manual*.

Refer to the *N9360A Multi UE Tester Installation Guide* about the common specification of the Tester.

Refer to the *N9360A Multi UE Tester GSM User Manual* and *N9360A Multi UE Tester WCDMA User Manual* for N9360A GSM options and N9360A W-CDMA options respectively.

Measurement Performance

MC-1x

Power Measurement

Power Measurement specifications are shown on Table 7-1.

Table 7-1 Power Measurement

Item	Specification	Unit	Remarks
Measurement range	–60 to +36	dBm	
Resolution	0.01	dB	
Measurement accuracy	–53 to +36 dBm		Downlink Output Level
	±1.0 (25 °C ± 5 °C)	dB	: <–50 dBm
	±1.5 (0 °C ± 50 °C)		
	–60 to –53.01 dBm		
	±1.5 (25 °C ± 5 °C)	dB	
	±2.0 (0 °C ± 50 °C		

Frequency Error Measurement

Frequency Error Measurement specifications are shown on Table 7-2.

Table 7-2 Frequency Error Measurement

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	±10.0	kHz	
Resolution	0.1	Hz	
Measurement Accuracy	≤±(30.0 + frequency accuracy of the reference signal)	Hz	

Waveform Quality (Rho/Multi-Code Rho) measurement

The specifications of Waveform Quality (Rho/Multi-Code Rho) Measurement are shown on Table 7-3.

Table 7-3 Waveform Quality (Rho/Multi-Code Rho) measurement

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	0.900 to 0.999		
Resolution	0.001		
Residential Rho	≥0.990		Downlink Output Level : <–50 dBm

Time Offset measurement

Time Offset Measurement specifications are shown on Table 7-4.

Table 7-4 Time Offset measurement

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	±10	μsec	
Resolution	1/8	chip	(Approximately 102 nsec)

Maximum TX Power Measurement

Maximum TX Power Measurement specifications are shown on Table 7-5.

Table 7-5 Maximum TX Power Measurement

Item	Specification	Unit	Remarks
Measurement Range	–60 to +36	dBm	
Resolution	0.01	dB	
Measurement Accuracy	–53 to +36 dBm ±1.0 (25 °C ±5 °C) ±1.5 (0 °C ±50 °C)	dB	Downlink Output Level : <–50 dBm
	–60 to –53.01 dBm ±1.5 (25 °C ±5 °C) ±2.0 (0 °C ±50 °C)	dB	

Minimum TX Power Measurement

Minimum TX Power Measurement specifications are shown on Table 7-6.

Table 7-6 Minimum TX Power Measurement

Item	Specification	Unit	Remarks
Measurement Range	–60 to +36	dBm	
Resolution	0.01	dB	
Measurement Accuracy	–53 to +36 dBm ±1.0 (25 °C ±5 °C) ±1.0 (0 °C ±50 °C)	dB	Downlink Output Level : <–50 dBm
	–60 to –53.01 dBm ±1.5 (25 °C ±5 °C) ±2.0 (0 °C ±50 °C)	dB	

Access Probe Power Measurement

Access Probe Power Measurement specification is shown on Table 7-7.

Table 7-7 Access Probe Power Measurement

Item	Specification	Unit	Remarks
Input Level	–40 to +36	dBm	

Origin Offset Measurement

Origin Offset Measurement specifications are shown on Table 7-8.

Table 7-8 Origin Offset

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	–20 to –50	dBc	Downlink Output Level : <–50 dBm
Resolution	0.01	dB	
Residential Offset	≤–35	dBc	

Code Domain Power Measurement

Code Domain Power Measurement specification is shown on Table 7-9.

Table 7-9 Code Domain Power Measurement

Item	Specification	Unit	Remarks
Measurement Range	–20 to +36	dBm	
Resolution	0.1	dB	
Accuracy	At Code Power reading ≥–10 dBc ±1.5	dB	Downlink Output Level : <–50 dBm
	At Code Power reading ≥–20 dBc ±3.0		
Residual	≤–27	dB	

1xEV-DO

Power Measurement

Power Measurement specifications are shown on Table 7-10.

Table 7-10 Power Measurement

Item	Specification	Unit	Remarks
Measurement range	–60 to +36	dBm	
Resolution	0.01	dB	
Measurement accuracy	–53 to +36 dBm ±1.0 (25 °C ±5 °C) ±1.5 (0 °C ±50 °C)	dBm	Downlink Output Level : <–50 dBm
	–60 to –53.01 dBm ±1.5 (25 °C ±5 °C) ±2.0 (0 °C ±50 °C)	dB	

Frequency Error Measurement

Frequency Error Measurement specifications are shown on Table 7-11.

Table 7-11 Frequency Error Measurement

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	±10.0	kHz	
Resolution	0.1	Hz	
Measurement Accuracy	≤±(30.0 + frequency accuracy of the reference signal)	Hz	Downlink Output Level : <–50 dBm

Waveform Quality (Rho/Multi-Code Rho) measurement

The specifications of Waveform Quality (Rho/Multi-Code Rho) measurement are shown on Table 7-12.

Table 7-12 Waveform Quality (Rho/Multi-Code Rho) measurement

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	0.900 to 0.999		
Resolution	0.001		
Residential Rho	≥0.990		Downlink Output Level : <–50 dBm

Time Offset measurement

Time Offset Measurement specifications are shown on Table 7-4.

Table 7-13 Time Offset Measurement

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	±10	μsec	
Resolution	1/8	chip	(Approximately 102 nsec)

Maximum TX Power Measurement

Maximum TX Power Measurement specifications are shown on Table 7-14.

Table 7-14 Maximum TX Power Measurement

Item	Specification	Unit	Remarks
Measurement Range	–60 to +36	dBm	
Resolution	0.01	dB	
Measurement Accuracy	–53 to +36 dBm ±1.5 (25 °C ±5 °C) ±1.5 (0 °C ±50 °C)	dB	Downlink Output Level : <–50 dBm
	–60 to –53.01 dBm ±1.5 (25 °C ±5 °C) ±2.0 (0 °C ±50 °C)	dB	

Minimum TX Power Measurement

Minimum TX Power Measurement specifications are shown on Table 7-15.

Table 7-15 Minimum TX Power Measurement

Item	Specification	Unit	Remarks
Measurement Range	–60 to +36	dBm	
Resolution	0.01	dB	
Measurement Accuracy	–53 to +36 dBm ±1.0 (25 °C ±5 °C) ±1.0 (0 °C ±50 °C)	dB	Downlink Output Level : <–50 dBm
	–60 to –53.01 dBm ±1.5 (25 °C ±5 °C) ±2.0 (0 °C ±50 °C)	dB	

Access Probe Power Measurement

Access Probe Power Measurement specification is shown on Table 7-16.

Table 7-16 Access Probe Power Measurement

Item	Specification	Unit	Remarks
Input Level	–40 to +36	dBm	

Origin Offset Measurement

Origin Offset Measurement specifications are shown on Table 7-17.

Table 7-17 Origin Offset

Item	Specification	Unit	Remarks
Input Level	–20 to +36	dBm	
Measurement Range	–20 to –50	dBc	Downlink Output Level : <–50 dBm
Resolution	0.01	dB	
Residential Offset	≤–35	dBc	

Code Domain Power Measurement

Code Domain Power Measurement specification is shown on Table 7-18.

Table 7-18 Code Domain Power Measurement

Item	Specification	Unit	Remarks
Measurement Range	–20 to +36	dBm	
Resolution	0.1	dB	
Accuracy	At Code Power reading ≥–10 dBc ±1.5	dB	Downlink Output Level : <–50 dBm
	At Code Power reading ≥–20 dBc ±3.0		
Residual	≤–27	dB	

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A
Appendix A Input Items and Allowable Options or Ranges

This chapter contains a table of the input items and allowable options or ranges of values for test parameters and test items. This table is also useful for configuring the [Configuration: Test Sequence] and [Configuration: Test Condition] screens.

Refer to the *N9360A Multi UE Tester GSM User Manual* and *N9360A Multi UE Tester WCDMA User Manual* when you specify GSM or W-CDMA in the Test Sequence.

Table A-1 Input fields and allowance choices or ranges

Screen	Set Item				Set Value
Automatic Test	RFCH (Band + Channel)				BAND 0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799 | BAND 1 (PCS US): 0 to 1199| BAND 3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799 | BAND 4 (PCS KR): 0 to 599 | BAND 6 (IMT-2K): 0 to 1199 BAND 15 (AWS)[1]:0 ~ 899
	Caller ID		Value		Max. 32 digits, including arbitrary digits (0 to 9) and symbols ([2] and #).
Manual Test	MC-1x	CDMA	Selection of measurement items		Off | On
			Radio System		Fixed to **CDMA2000**
			Service Option	F1R1	1| 2| 3| 55
				F2R2	9| 17| 55| 32768
				F3R3	1| 2| 3| 32| 55
				F4R3	1| 2| 3| 32| 55
				F5R4	9| 17| 32| 55| 32768
			PWR CTRL	Control numeric	1 to 99
				Control	UP| DOWN| CNTUP| CNTDWN| HOLD
			FER TDSO FER	Max Frames	25 to 10000000
				Confidence	95%| Off
			Radio Config		F1R1| F2R2| F3R3| F4R3| F5R4
			SCH Rate	F3R3	9.6| 19.2| 38.4| 76.8| 153.6
				F4R3	9.6| 19.2| 38.4| 76.8| 153.6
				F5R4	14.4| 28.8| 57.6| 115.2| 230.4
			SCH Encoder		CONV | TURB

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Manual Test (continued)	MC-1x (continued)	CDMA (continued)	SCH Level		–20.00 to –2.50
			Averaging		Off| 2 to 99
			RF Output		Off| On
		CDMA (continued)	Caller ID	Value	Max. 32 digits, including arbitrary digits (0 to 9) and symbols (^{2} and #).
			RX Power		Off| On
		Band 0: Cel US	RFCH		BAND 0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799
			BS Level		–115.0 to –18.0
		BAND 1: PCS US	RFCH		BAND 1 (PCS US): 0 to 1199
			BS Level		–115.0 to –18.0
		BAND 3: Cel JP	RFCH		BAND 3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799
			BS Level		–115.0 to –18.0
		BAND 4: PCS KR	RFCH		BAND 4 (PCS KR): 0 to 599
			BS Level		–115.0 to –18.0
		BAND 6: IMT-2K	RFCH		BAND 6 (IMT-2K): 0 to 1199
			BS Level		–115.0 to –18.0
	1xEV-DO	CDMA	Selection of measurement items		Off |On
			Radio System		Fixed to **CDMA2000**
			PER FT Rate		307.2| 2457.6| 3027.0
			PWR CNTL	Control numeric	1 to 99
				Control	UP| DOWN| CNTUP| CNTDWN| HOLD
			PER	Max Packets	25 to 10000000
				Confidence	95%| Off
			Averaging		Off| 2 to 99
			RF Output		Off| On

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item			Set Value
Manual Test (continued)	1xEV-DO (continued)	BAND 0: Cel US	RFCH	BAND 0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799
			BS Level	–115.0 to –18.0
			Per BS Level	–115.0 to –18.0
		BAND 1: PCS US	RFCH	BAND 1 (PCS US): 0 to 1199
			BS Level	–115.0 to –18.0
			Per BS Level	–115.0 to –18.0
		BAND 3: Cel JP	RFCH	BAND 3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799
			BS Level	–115.0 to –18.0
			Per BS Level	–115.0 to –18.0
		BAND 4: PCS KR	RFCH	BAND 4 (PCS KR): 0 to 599
			BS Level	–115.0 to –18.0
			Per BS Level	–115.0 to –18.0
		BAND 6: IMT-2K	RFCH	BAND 6 (IMT-2K): 0 to 1199
			BS Level	–115.0 to –18.0
			Per BS Level	–115.0 to –18.0
Configuration (Top Menu)	Reference			Internal | External
	Serial Port		Baud Rate	9600 | 19200 | 38400 | 57600 | 115200
			Data Length	7 | 8
			Stop Bits	1 | 1.5 | 2
			Parity	None | Even | Odd
			Xcontrol	None | Xon/Xoff
	Gateway			ACT/NONE
			Addr	0.0.0.0. ~ 255.255.255.255

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item			Set Value
Configuration (Top Menu)(continued)	GP-IB	Address		1~15
		EOI		On | Off
	Terminator			CR | LF | CR+LF
	Date/Time		YYYY	1990 ~ 2037
			MM	1~12
			DD	1~31
			HH	0~23
			MM	0~59
	Printer			USB Memory | EPSON PM-G800
	Beeper			On | Off
	AutoBoot	Application		None |FUNC GSM | FUNC WCDMA | FUNC CDMA2000
		Timer		10 ~ 60
Configuration	Panel Key			Unlock| Lock
	Serial Port	Baud Rate		9600| 19200|38400| 57600| 115200
		Data Length		7| 8
		Stop Bits		1| 1.5| 2
		Parity		None| Odd| Even
		Xcontrol		None| Xon/Xoff
	GP-IB	Addr		1 to 15
		EOI		Off| On
	Terminator			CR| LF| CR+LF
	Printer			EPSON PM-G800| USB Memory
	Beeper			Off| On
	MS EXT Control Signal			H/L| L/H| H/H| L/L

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item			Set Value
Configuration (contiinued)	System Time	YYYY		1980 to 2030
		MM		01 to 12
		DD		01 to 31
		HH		00 to 23
		MM		00 to 59
	Date/Time	YYYY		1990 to 2037
		MM		01 to 12
		DD		01 to 31
		HH		00 to 23
		MM		00 to 59
Network Setting	Ethernet	IP Addr		1.0.0.1 to 223.255.255.255
		CIDR(Mask)		1 to 31
		Default Gateway		ACT| None
		Addr		1.0.0.1 to 223.255.255.255
		Gateway Setting1	Setting	Act| None
			Host	1.0.0.1 to 223.255.255.255
			CIDR (MASK)	1 to 31| None
			Gateway	1.0.0.1 to 223.255.255.255
		Gateway Setting2	Setting	Act| None
			Host	1.0.0.1 to 223.255.255.255
			CIDR (MASK)	1 to 31| None
			Gateway	1.0.0.1 to 223.255.255.255
		Gateway Setting3	Setting	Act| None
			Host	1.0.0.1 to 223.255.255.255
			CIDR (MASK)	1 to 31| None
			Gateway	1.0.0.1 to 223.255.255.255
		Gateway Setting4	Setting	Act| None
			Host	1.0.0.1 to 223.255.255.255
			CIDR (MASK)	1 to 31 | None
			Gateway	1.0.0.1 to 223.255.255.255
		Gateway Setting5	Setting	Act| None

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Network Setting (continued)	Ethernet (continued)	Gateway Setting5 (continued)		Host/Net	1.0.0.1 to 223.255.255.255
				CIDR (MASK)	1 to 31 | None
				Gateway	1.0.0.1to 223.255.255.255
Test Condition	MC-1x/ 1xEV-DO Common	3GPP System			1 to 9
		Signaling Pattern			1 to 255
		3GPP2 Config			1 to 4
		CDMA Mode			MC-1x| 1xEV-DO
	MC-1x	Current System			W-CDMA| GSM|CDMA2000
		Band			B0:Cel US |B1:PCS US | B3:Cel JP |B4:PCS KR | B6:IMT-2K |B15: AWS[1]
		CDMA common	MCC		000 to 999
			MNC		00 to 99
			FER TDSO FER	Max Frames	25 to 10000000
				Confidence	Off | 95%
			Access Probe Pwr Meas		Off| On
			Connection Wait		0 to 120
			Averaging		Off | 2 to 99
			SCH Rate	F3R3	9.6| 19.2| 38.4| 76.8| 153.6
				F4R3	9.6| 19.2| 38.4| 76.8| 153.6
				F5R4	14.4| 28.8| 57.6| 115.2| 230.4
			SCH Encoder		CONV| TURB
			SCH Level		–20.00 to –2.50
			Radio Conf		F1R1| F2R2| F3R3| F4R3| F5R4
			Loopback Delay		Short| Mid| Long
		B0: Cel US B1: PCS US B3: Cel JP B4: PCS KR B6: IMT-2K B15: AWS[1]	NID		0 to 65535
			Rgstr NID		0 to 65535
			SID		0 to 32767
			Rgstr SID		0 to 32767

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Test Condition (continued)	MC-1x (continued)		Power Up Rgstr		Off | On
			Max Slot Cycle Index		0 to 7
			Nom Pwr		-8 to 7
			Init Pwr		-16 to +15
			Pwr Step		0 to 7
			Num Step		0 to 15
			Max Req Seq, Max Rsp Seq		1 to 15
			Max Tx Power BS Level		-115.0 to -18.0
			Min Tx Power BS Level		-115.0 to -18.0
	1xEV-DO	Current System			W-CDMA|GSM|CDMA2000
		Band			B0: Cel US| B1: PCS US| B3: Cel JP| B4: PCS KR| B6: IMT-2K| B15: AWS[1]
		CDMA common	PER	Max Packets	25 to 10000000
				Confidence	Off | 95%
			Access Probe Pwr Meas		Off | On
			Averaging		Off | 2 to 99
		B0:Cel US B1:PCS US B3:Cel JP B4:PCS KR B6:IMT-2K B15: AWS[1]	Open Loop Adj		0 to -255
			Probe Init Adj		-16 to +15
			Plobe Num Step		1 to 15
			Power Step		0 to 15
			Max TX Power BS Level		-115.0 to -18.0
			Min TX Power BS Level		-115.0 to -18.0
			Country Code		0 to 4095
			Sector ID		0000 to FFFF
			Subnet Mask		00 to FF
			UATI Color Code		00 to FF

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Loss	Loss				Off | On
	RF In		B0: Cel US		0.0 to 99.9
			B1: PCS US		0.0 to 99.9
			B3: Cel JP		0.0 to 99.9
			B4: PCS KR		0.0 to 99.9
			B6: IMT-2K		0.0 to 99.9
			B15: AWS[1]		0.0 ~ 99.9
	RF Out		B0: Cel US		0.0 to 99.9
			B1: PCS US		0.0 to 99.9
			B3: Cel JP		0.0 to 99.9
			B4: PCS KR		0.0 to 99.9
			B6: IMT-2K		0.0 to 99.9
			B15: AWS[1]		0.0 ~ 99.9
Limit	MC-1x	Current System			W-CDMA| GSM| CDMA2000
		Radio System			Fixed to **CDMA2000**
		CDMA Mode			MC-1x| 1xEV-DO
		Band			B0: Cel US |B1: PCS US | B3: Cel JP |B4: PCS KR | B6: IMT-2K|B15: AWS[1]
		B0: Cel US B1: PCS US B3: Cel JP B4: PCS KR B6: IMT-2K B15: AWS[1]	Test Item LO, HI Limit	Access Probe Power	–99.9 ~ +99.9
				ILP(Down)	–99.99 ~ +99.99
				ILP(Up)	–99.99 ~ +99.99
				Max TX Power	–99.99 ~ +99.99
				Min TX Power	–99.99 ~ +99.99
				Frequency Error	–10000.0 ~ +10000.0
				Rho	0.800 ~ 1.000
				Multi-code Rho	0.800 ~ 1.000
				Origin Offset	–99.9 ~ 0.0
				TIme Offset	–10.00 ~ +10.00
				Sens/FER (95%)	0.0 ~ 5.0
				Sens/FER (Off)	0.00 ~ 100.00

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Limit (continued)	MC-1x (continued)		Test Item LO, HI Limit (continued)	Sens/TDSO FER (95%)	0.0 ~ 5.0
				Sens/TDSO FER(Off)	0.00 ~ 100.00
	1xEV-DO	Current System			W-CDMA| GSM| CDMA2000
		Radio System			Fixed to **CDMA2000**
		CDMA Mode			MC-1x| 1xEV-DO
		Band			B0: Cel US |B1: PCS US | B3: Cel JP |B4: PCS KR | B6: IMT-2K|B15: AWS[1]
		3GPP2 Config			1~4
		B0: Cel US B1: PCS US B3: Cel JP B4: PCS KR B6: IMT-2K B15: AWS[1]	Test Item LO, HI Limit	Access Probe Power	–99.9 ~ +99.9
				ILP(Down)	–99.99 ~ +99.99
				ILP(Up)	–99.99 ~ +99.99
				Max TX Power	–99.99 ~ +99.99
				Min TX Power	–99.99 ~ +99.99
				Frequency Error	–10000.0 ~ +10000.0
				Multi-code Rho	0.800 ~ 1.000
				Origin Offset	–99.9 ~ 0.0
				TIme Offset	–10.00 ~ +10.00
				Sens/PER Test1 (95%)	0.0 ~ 5.0
				Sens/PER Test1 (Off)	0.00 ~ 100.00
				Sens/PER Test2 (95%)	0.0 ~ 5.0
				Sens/PER Test2 (Off)	0.00 ~ 100.00
				Sens/PER Test3 (95%)	0.0 ~ 5.0
				Sens/PER Test3 (Off)	0.00 ~ 100.00
Test Sequence	MC-1x	Sequence No.1			CDMA2000 MC-1x
		Sequence No.2			CDMA2000 MC-1x| ————
		Sequence No.			1 to 2
		RF Output			Auto| On

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item					Set Value
Test Sequence (continued)	MC-1x (continued)	MS EXT Control				Off| On
		3GPP System				1 to 9
		Sequence No.1	Location Update Execution/non-execution selection			— | Run
			MS Call Execution/non-execution selection			— | Run
			Talk execution/non-execution selection			— | Run
			BS Call (Talk) Talk execution/non-execution selection			— | Run
			Talk Talk Execution/non-execution selection			— | Run
			BS Call (RF Test) Talk execution/non-execution selection			— | Run
			RF Test Talk execution/non-execution selection			— | Run
			Softer Handoff Talk execution/non-execution selection			— | Run
			Transition method selection-1 from Seq1 to Seq2			BS Release | System Handoff
			Transition method selection-2 from Seq1 to Seq2			BS Release | System Handoff
			Band			0| 1| 3| 4| 6| 15
			B0:Cel US B1:PCSUS B3:Cel JP B4:PCSKR B6:IMT-2K B15: AWS[1]	BS Level setting	BS Level (Access Probe Power)	-115.0 to -18.0
					Measurement BS Level	
					Max TX Power BS Level	
					Min TX Power BS Level	
					FER BS Level	
			Location Update Timeout			5 to 300

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Test Sequence (continued)	MC-1x (continued)	Sequence No. 1 (continued)	Service Option	F1R1 Talk	1 | 3
				F2R2 Talk	17 | 32768
				F3R3 Talk	1 | 3
				F4R3 Talk	1 | 3
				F5R4 Talk	17 | 32768
				F1R1 RF Test	2 | 55
				F2R2 RF Test	9 | 55
				F3R3 RF Test	2 | 55
				F4R3 RF Test	2 | 55
				F5R4 RF Test	9 | 55
			Wait before paging		0.0 to 99.9
			RFCH (Band + Channel)		BAND 0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799 | BAND 1 (PCS US): 0 to 1199 | BAND 3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799 | BAND 4 (PCS KR): 0 to 599 | BAND 6 (IMT-2K): 0 to 1199 BAND 15[1] (AWS): 0 ~ 899
			Access Probe Power Execution/non-execution selection		— | Run
			Inner Loop Power Execution/non-execution selection		— | Run
			Max TX Power Execution/non-execution selection		— | Run
			Min TX Power Execution/non-execution selection		— | Run
			Frequency Error Execution/non-execution selection		— | Run
			Rho Execution/non-execution selection		— | Run
			Time Offset Execution/non-execution selection		— | Run

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item					Set Value
Test Sequence (continued)	MC-1x (continued)	Sequence No. 1 (continued)	Sensitivity/FER Execution/non-execution selection			— | Run
			ATT In			-9.9 to +9.9
			ATT Out			-9.9 to +9.9
		Sequence No.2	Location Update Execution/non-execution selection			— | Run
			MS Call Execution/non-execution selection			— | Run
			Talk Execution/non-execution selection			— | Run
			BS Call (Talk) Execution/non-execution selection			— | Run
			Talk Execution/non-execution selection			— | Run
			BS Call (RF Test) Execution/non-execution selection			— | Run
			RF Test Execution/non-execution selection			— | Run
			Softer Handoff Execution/non-execution selection			— | Run
			Band			0| 1| 3| 4| 6
			B0: Cel US B1: PCSUS B3: Cel JP B4: PCS KR B6: IMT-2K B15: AWS[1]	BS Level Setting	BS Level (Access Probe Power)	-115.0 to -18.0
					Measurement BS Level	
					Max TX Power BS Level	
					Min TX Power BS Level	
					FER BS Level	
			Location Update Timeout			5 to 300

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Test Sequence (continued)	MC-1x (continued)	Sequence No. 2 (continued)	Service Option	F1R1 Talk	1 | 3
				F2R2 Talk	17 | 32768
				F3R3 Talk	1 | 3
				F4R3 Talk	1 | 3
				F5R4 Talk	17 | 32768
				F1R1 RF Test	2 | 55
				F2R2 RF Test	9 | 55
				F3R3 RF Test	2 | 55
				F4R3 RF Test	2 | 55
				F5R4 RF Test	9 | 55
			Wait before paging		0.0 to 99.9
			RFCH (Band + Channel)		BAND 0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799 | BAND 1 (PCS US): 0 to 1199 | BAND 3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799 | BAND 4 (PCS KR): 0 to 599 | BAND 6 (IMT-2K): 0 to 1199 BAND 15 [1] (AWS): 0 ~ 899
			Access Probe Power Execution/non-execution selection		— | Run
			Inner Loop Power Execution/non-execution selection		— | Run
			Max TX Power Execution/non-execution selection		— | Run
			Min TX Power Execution/non-execution selection		— | Run
			Frequency Error Execution/non-execution selection		— | Run
			Rho Execution/non-execution selection		— | Run
			Time Offset Execution/non-execution selection		— | Run

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Test Sequence (continued)	MC-1x (continued)	Sequence No. 2 (continued)	Sensitivity/FER Execution/non-execution selection		— | Run
			ATT In		-9.9 to +9.9
	1xEV-DO	Sequence No. 1			CDMA2000 1xEV-DO
		Sequence No. 2			CDMA2000 1xEV-DO| ————
		Sequence No.			1 to 2
		RF Output			Auto| On
		3GPP System			1 to 9
		Sequence No.1	RF Test Execution/non-execution selection		— | Run
			Softer Handoff Execution/non-execution selection		— | Run
			Band		0| 1| 3| 4| 6| 15
			B0:Cel US B1:PCSUS B3:Cel JP B4:PCSKR B6:IMT-2K B15: AWS[1]	BS Level (Access Probe Power)	-115.0 to -18.0
				Measurement BS Level	
				Max TX Power BS Level	
				Min TX Power BS Level	
				3GPP2 Config 1, 2: PER BS Level1, 2	
				3GPP2 Config 3, 4: PER BS Level1, 2, 3	
			Wait before paging		0.0 to 99.9
			UATI Assignment Timeout		5 to 300
			RFCH (Band + Channel)		BAND 0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799 |BAND 1 (PCS US): 0 to 1199| BAND 3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799 |BAND 4 (PCS KR): 0 to 599 |BAND 6 (IMT-2K): 0 to 1199 BAND 15[1] (AWS): 0~899
			Access Probe Power execution/non-execution selection		— | Run

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item				Set Value
Test Sequence (continued)	1xEV-DO (continued)	Sequence No.1 (continued)	Inner Loop Power execution/non-execution selection		— | Run
			Max TX Power execution/non-execution selection		— | Run
			Min TX Power execution/non-execution selection		— | Run
			Frequency Error execution/non-execution selection		— | Run
			Rho execution/non-execution selection		— | Run
			Time Offset execution/non-execution selection		— | Run
			Sensitivity/PER1 execution/non-execution selection		— | Run
			Sensitivity/PER2 execution/non-execution selection		— | Run
			ATT In		-9.9 to +9.9
			ATT Out		-9.9 to +9.9
		Sequence No.2	RF Test execution/non-execution selection		— | Run
			Softer Handoff execution/non-execution selection		— | Run
			Band		0| 1| 3| 4| 6| 15
			B0:Cel US B1:PCSUS B3:Cel JP B4:PCSKR B6:IMT-2K B15:AWS[1]	BS Level Setting	BS Level (Access Probe Power)	-115.0 to -18.0
					Measurement BS Level	
					Max TX Power BS Level	
					Min TX Power BS Level	
					PER BS Level1	
					PER BS Level2	
			Wai before paging			0.0 to 99.9
			UATI Assignment Timeout			5 to 300

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item			Set Value
Test Sequence (continued)	1xEV-DO (continued)	Sequence No.2 (continued)	RFCH (Band + Channel)	BAND 0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799 | BAND 1 (PCS US): 0 to 1199 |BAND 3 (Cel JP): 1041 to 1199,1201 to 1600, 801 to 1039, 1 to 799 |BAND 4 (PCS KR): 0 to 599 | BAND 6 (IMT-2K): 0 to 1199 BAND 15[1] (AWS): 0 ~ 899
			Access Probe Power execution/non-execution selection	— | Run
			Inner Loop Power execution/non-execution selection	— | Run
			Max TX Power execution/non-execution selection	— | Run
			Min TX Power execution/non-execution selection	— | Run
			Frequency Error execution/non-execution selection	— | Run
			Rho execution/non-execution selection	— | Run
			Time Offset execution/non-execution selection	— | Run
			Sensitivity/PER1 execution/non-execution selection	— | Run
			Sensitivity/PER2 execution/non-execution selection	— | Run
			Sensitivity/PER3 execution/non-execution selection	— | Run
			ATT In	-9.9 to +9.9
			ATT Out	-9.9 to +9.9

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item			Set Value
TX Analyzer	CDMA	Radio System		CDMA2000
		Modulation	Mode	Off| Pilot Only| Pilot+Sync+Pch+OCNS+Fch Pilot+Sync+Pch+OCNS+Fch +Sch| Cont Pilot| Pilot+MAC+Cntrl| Pilot+MAC+Cntrl+Tch| AM Modulation1| AM Modulation2
			Modulation method	QPSK | 8PSK | 16QAM
		Averaging		Off| 2 to 99
		RF Output		Off| On
	BAND0: Cel US	RFCH		BAND0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799
		Amplitude		115.0 to -18.0
	BAND1: PCS US	RFCH		BAND1 (PCS US): 0 to 1199
		Amplitude		-115.0 to -18.0
	BAND3: Cel JP	RFCH		BAND3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799
		Amplitude		-115.0 to -18.0
	BAND4: PCS KR	RFCH		BAND4 (PCS KR): 0 to 599
		Amplitude		-115.0 to -18.0
	BAND6: IMT-2K	RFCH		BAND6 (IMT-2K): 0 to 1199
		Amplitude		-115.0 to -18.0
	BAND15: AWS[1]	RFCH		BAND15 (AWS): 0 ~ 899
		Amplitude		-115.0 ~ -18.0

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item			Set Value
Signal Generator	CDMA	Selection of measurement items		Off| On
		Radio System		Fixed to **CDMA2000**
		Modulation	Mode	Pilot Only| Pilot+Sync+Pch+OCNS+Fch Pilot+Sync+Pch+OCNS+Fch +Sch| Cont Pilot| Pilot+MAC+Cntrl| Pilot+MAC+Cntrl+Tch| AM Modulation1| AM Modulation2
			Modulation method	QPSK | 8PSK | 16QAM
		Subtype		0| 2
		RF Output		Off| On
	BAND0: Cel US	RFCH		BAND0 (Cel US): 1024 to 1323, 991 to 1023, 1 to 799
		Amplitude		-115.0 to -18.0
	BAND1: PCS US	RFCH		BAND1 (PCS US): 0 to 1199
		Amplitude		-115.0 to -18.0
	BAND3: Cel JP	RFCH		BAND3 (Cel JP): 1041 to 1199, 1201 to 1600, 801 to 1039, 1 to 799
		Amplitude		-115.0 to -18.0
	BAND4: PCS KR	RFCH		BAND4 (PCS KR): 0 to 599
		Amplitude		-115.0 to -18.0
	BAND6: IMT-2K	RFCH		BAND6 (IMT-2K): 0 to 1199
		Amplitude		-115.0 to -18.0
	BAND15: AWS[1]	RFCH		BAND15 (AWS): 0 ~ 899
		Amplitude		-115.0 ~ -18.0
File Management	File Name			Any character string
	Comments			Any character string

Table A-1 Input fields and allowance choices or ranges (continued)

Screen	Set Item	Set Value
Soft Key	Screen	Simple| Detail| Value
	Trigger	Sing| Cont
	Magnification change	x1| x10| x100| x1000
	Caps	Off| On
	Over/Ins	Over| Ins

[1] The Band15 (AWS Band) is available only when the Option C03 is installed in the Tester.

[2] From 192.168.1.1 to 192.168.1.255 are unavailable to setting.

Table A-2 Relation between Radio Config and Service Option

		Service Option							
Radio Config	**Base Rate**	**1 (Normal Voice)**	**2 (9.6k Data Loop Back)**	**3 (EVRC 9.6k Voice)**	**9 (14.4k Data Loop Back)**	**17 (14.4k Voice)**	**32 (TDSO)**	**55 (Data Loop Back)**	**32768 (14.4k Voice)**
F1R1	9.6k	⊗	⊗	⊗				⊗	
F2R2	14.4k				⊗	⊗		⊗	⊗
F3R3	9.6k	⊗	⊗	⊗			⊗ (+F-SCH)	⊗	
F4R3	9.6k	⊗	⊗	⊗			⊗ (+F-SCH)	⊗	
F5R4	14.4k				⊗	⊗	⊗ (+F-SCH)	⊗	⊗

* Service Option 32 (TDSO) for only manual test

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A Appendix A Input Items and Allowable Options or Ranges

B
Appendix B General information on cdma2000 system

Channel frequency and channel number B-2
Frequency band B-2
S/R frequency interval B-3

This appendix describes major information including frequency bands and parameters used in the cdma2000 system.

Channel frequency and channel number

The channel frequencies and channel numbers for each band are shown in Table B-1.

Table B-1 RF channel

Radio System	Up Channel Number	Down Channel Number
BAND0: Cel US	1024≤N≤1323 991≤N≤1023 1≤N≤799	1024≤N≤1323 991≤N≤1023 1≤N≤799
BAND1: PCS US	0≤N≤1199	0≤N≤1199
BAND3:Cel: JP	1041≤N≤1199 1201≤N≤1600 801≤N≤1039 1≤N≤799	1041≤N≤1199 1201≤N≤1600 801≤N≤1039 1≤N≤799
BAND4: PCS KR	0≤N≤600	0≤N≤599
BAND6: IMT-2K	0≤N≤1199	0≤N≤1199

Frequency band

The cdma2000 system operates in a pair of bands as shown in Table B-2.

Table B-2 Frequency band

Radio System	Up Frequency	Down Frequency
BAND0: Cel US	815040000≤F≤824010000 824040000≤F≤825000000 825030000≤F≤848970000	860040000≤F≤869010000 869040000≤F≤870000000 870030000≤F≤893970000
BAND1: PCS US	1850000000≤F≤1909950000	1930000000≤F≤1989950000
BAND3:Cel: JP	887012500≤F≤888987500 893012500≤F≤898000000 898012500≤F≤900987500 915012500≤F≤924987500	832012500≤F≤833987500 838012500≤F≤843000000 843012500≤F≤845987500 860012500≤F≤869987500
BAND4: PCS KR	1750000000≤F≤1779950000	1840000000≤F≤1869950000
BAND6: IMT-2K	1920000000≤F≤1979950000	2110000000≤F≤2169950000

S/R frequency interval

S/R frequency interval is designed as shown in Table B-3.

Table B-3 S/R frequency interval

Radio System	Up Frequency	Down Frequency
BAND0: Cel US	815040000 + 30000 * (N-1024) 825000000 + 30000 * (N-1023) 825000000 + 30000 * N	860040000 + 30000 * (N-1024) 870000000 + 30000 * (N-1023) 870000000 + 30000 * N
BAND1: PCS US	1850000000 + 50000 * N	1930000000 + 50000 * N
BAND3:Cel: JP	887000000 + 12500 * (N-1040) 893000000 + 12500 * (N-1200) 898000000 + 12500 * (N-800) 915000000 + 12500 * N	832000000 + 12500 * (N-1040) 838000000 + 12500 * (N-1200) 843000000 + 12500 * (N-800) 860000000 + 12500 * N
BAND4: PCS KR	1750000000 + 50000 * N	1840000000 + 50000 * N
BAND6: IMT-2K	1920000000 + 50000 * N	2110000000 + 50000 * N

UE maximum transmission power

The maximum transmission power is defined as shown in Table B-4 by the power class. The defined maximum transmission power is the broadband transmission output of UE. In other words, the output is the chip rate of at least (1+a) band width times the radio access mode. The measuring period is at least one time slot.

Table B-4 UE maximum transmission power

Operating band	Power Class 1		Power Class 2		Power Class 3		Power Class 4		Power Class 5	
	Lower Limit (dBm)	Upper Limit (dB)	Lower Limit (dBm)	Upper Limit (dB)	Lower Limit (dBm)	Upper Limit (dB)	Lower Limit (dBm)	Upper Limit (dB)	Lower Limit (dBm)	Upper Limit (dB)
Band 0, III	+31	+38	+27	+34	+23	+30	–	–	–	–
Band I, IV, VI, XV	+28	+33	+23	+30	+18	+27	+13	+24	+8	+21
Band VI (In Japan)	+20	+24	+20	+24	+18	+24	+13	+24	+8	+21

Reference:

3GPP2 C.S0011-A

Recommended minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations 4.4.5 Maximum RF Output Power

3GPP2 C.S0033A

Recommended minimum Performance Standards for cdma2000 High Rate Packet Data Access Terminal 4.3.4 Maximum RF Output Power

C
Appendix C N9360A-A02 Antenna Coupler

Introduction C-2
Specifications C-2
Operating the Antenna Coupler C-3

This chapter describes information of the Agilent N9360A-A02 Antenna Coupler.

Introduction

Agilent Technologies N9360A-A02 Antenna Coupler enables you to make the RF connection easily between the mobile phone and the Agilent N9360A Multi UE Tester.

The purpose of this guide is to provide you with the information on the Agilent N9360A-A02 Antenna Coupler. This chapter contains the following:

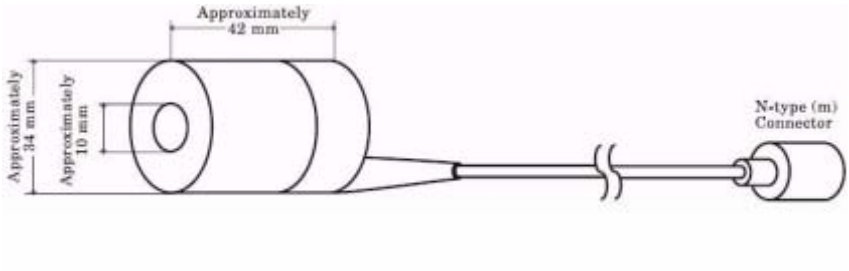
- The specifications of the Agilent N9360A-A02 Antenna Coupler
- Tester for operating the Agilent N9360A-A02 Antenna Coupler with the Agilent N9360A Multi UE Tester.

Specifications

This section lists the specifications of the Agilent N9360A-A02 Antenna Coupler. These specifications are the performance standards and limits against which the N9360A-A02 is tested. When shipped from the factory, the N9360A-A02 meets the following specifications:

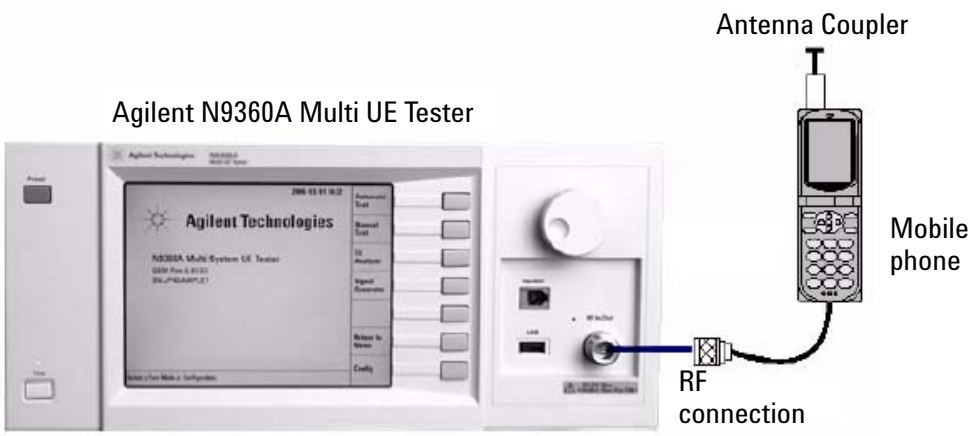
- Operation Frequency Range:
  - 824 MHz to 960 MHz, 1710 to 1880 MHz, and 1880 to 1990 MHz
- Coupling Factor:
  - 15 dB (at 824 MHz to 960 MHz; supplemental characteristics)
  - 13 dB (at 1710 MHz to 1880 MHz; supplemental characteristics)
  - 11 dB (at 1880 MHz to 1990 MHz; supplemental characteristics)
- Connector Type:
  - N-type (male)
- Operating Temperature:
  - 0 to 40 ºC
- Storage Temperature:
  - –20 to 60 ºC
- Dimension:
  - Outside Diameter: approximately 34 mm

- Inside Diameter: approximately 10 mm
- Length: approximately 42 mm



Operating the Antenna Coupler

1. If the antenna of the mobile phone can be stretched, fully stretch the antenna.
2. Connect the Antenna Coupler to the RF IN/OUT connector of the Agilent N9360A Multi UE Tester.
3. Insert the antenna into the hole of the Antenna Coupler pushing the Antenna Coupler down to the root of the antenna.



NOTE Make sure that the coupler is always placed exactly at the same position for each test with the same type antenna. Only in this way can consistent test conditions and test results be assured.

4 Set the attenuation (loss) values on the [Configuration: Test Condition (Loss)] screen. Refer to Entering Loss on the Configuration: Test Condition (Loss) Screen on page 4-22.

D
Appendix D Parameters of physical channels

Table D-5 Details of the modulation set value in TX Analyzer and Signal Generator D-2

This chapter describes parameters for each physical channel.

Table D-5 Details of the modulation set value in TX Analyzer and Signal Generator

	Set value	Modulation Method	Remark
MC-1x	Pilot Only	—	Code Channel • Pilot CH (0 dB)
	Pilot+Sync+Pch+OCNS+Fch	—	Code Channel • Pilot CH (-7 dB) • Sync CH (-16 dB) • Paging CH (-12 dB) • FCH (-7.4 dB) • OCNS Radio Config: F3R3 FCH Data Rate: 9.6 kbps
	Pilot+Sync+Pch+OCNS+Fch+Sch	—	Code Channel • Pilot CH (-7 dB) • Sync CH (-16 dB) • Paging CH (-12 dB) • FCH (-7 dB) • SCH • OCNS Radio Config: F3R3 SCH Data Rate, Encode, Level: Depends on setting value of [Configure: Test Condition] screen. (Preset value: 9.6 kbps, Convolutional Encoder, -3.5 dB)
1xEV-DO	Cont Pilot	—	Code Channel • Pilot CH (Continuously transmits Pilot Channel)
	Pilot+MAC+Control	—	Code Channel • Pilot CH • MAC RA • Control CH

Table D-5 Details of the modulation set value in TX Analyzer and Signal Generator

	Set value	Modulation Method	Remark
1xEV-DO (continued)	Pilot+MAC+Control+Tch	QPSK	Code Channel When the 3GPP2 Config is 1 or 2, or the 3GPP2 Config is 3 or 4 and the subtype is 0: • Pilot CH • MAC RA • MAC RPC / DRCLock • DATA CH • Control CH When the 3GPP2 Config is 3 or 4 and the subtype is 2: • Pilot CH • MAC RA • MAC RPC • MAC DRC Lock • DATA CH • Control CH Data Rate and Modulation of DATA CH: 307.2 kbps / QPSK
		8PSK	Code Channel When the 3GPP2 Config is 1 or 2, or the 3GPP2 Config is 3 or 4 and the subtype is 0: • Pilot CH • MAC RA • MAC RPC / DRCLock • DATA CH • Control CH When the 3GPP2 Config is 3 or 4 and the subtype is 2: • Pilot CH • MAC RA • MAC RPC • MAC DRCLock • DATA CH • Control CH Data Rate and Modulation of DATA CH: 921.6 kbps / 8PSK

Table D-5 Details of the modulation set value in TX Analyzer and Signal Generator

	Set value	Modulation Method	Remark
1xEV-DO (continued)	Pilot+MAC+Control+Tch (continued)	16QAM	Code Channel When the 3GPP2 Config is 1 or 2, or the 3GPP2 Config is 3 or 4 and the subtype is 0: • Pilot CH • MAC RA • MAC RPC / DRCLock • DATA CH • Control CH When the 3GPP2 Config is 3 or 4 and the subtype is 2: • Pilot CH • MAC RA • MAC RPC • MAC DRC Lock • DATA CH • Control CH Data Rate and Modulation of DATA CH: 2457.6 kbps / 16QAM
CW	Off		
AM	AM Modulation1	—	Amplitude Modulation 56% Modulation Degree Modulation Frequency: 20 kHz
	AM Modulation2	—	Double Side Band (Suppressed Carrier) Modulation Frequency: 20 kHz

E
Appendix E Softkey Menu Multi-language

Introduction 2

This chapter describes the Softkey Menu Multi-language capability of the Tester.

Introduction

The Softkey Menu Multi-language is the Tester's capability to switch the softkey menu to the different one. This capability is for the user to operate the Tester by using the softkey menu of the local language. The capability is applicable only to the softkey menu, but not to the screen display.

The softkey menu switch is performed by updating the firmware of System functions to the System functions in which the Softkey menu of the different language is embedded.

How to switch the Softkey Menu

The Softkey Menu switch is performed by updating the firmware of the System functions. For details of the firmware update method, refer to "Firmware Update Screen" on page 5-12. This section describes an example of the firmware update method using USB memory device to switch the Softkey Menu.

1. Download the firmware file of the System functions.
2. Copy the firmware file obtained at step 1 to the USB memory device.
3. Insert the USB memory device to the USB connector at the front panel of the Tester.
4. Turn on the Tester, and press **Config**, **FW Update**, **More (1 of 3)** softkey menu sequentially, then press **Update System** softkey to update the **System** functions.
5. After completing the firmware update, return to the [Top Screen] by pressing **Return** softkey menu and re-boot the Tester by turning it off and on.

Then the Softkey Menu of the selected language will appears on the screen.